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CLINICAL REPORTS

ON

CONTINUED FEVER,

BASED ON

ANALYSES OF ONE HUNDRED AND SIXTY-FOUR CASES;

WITH REMARKS ON

THE MANAGEMENT OF CONTINUED FEVER; THE IDENTITY
OF TYPHUS AND TYPHOID FEVER; RELAPSING
FEVER; DIAGNOSIS, ETC.

TO WHICH IS ADDED

A MEMOIR ON THE

TRANSPORTATION AND DIFFUSION BY CONTAGION

OF

TYPHOID FEVER,

AS EXEMPLIFIED IN THE OCCURRENCE OF THE DISEASE
AT NORTH BOSTON, ERIE COUNTY, N. Y.

BY

AUSTIN FLINT, M.D.,
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, AND OF CLINICAL MEDICINE, IN THE
UNIVERSITY OF BUFFALO, AND EDITOR OF THE BUFFALO MEDICAL JOURNAL.

PHILADELPHIA:
LINDSAY & BLAKISTON.
1855.

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NOTICE.

The reader is requested to correct the following errors:

Page 176, fifth line from the bottom of the page, for 22–39, read, 22–29.
" 307, fourth line from the top of the page, for 61, read 73.

The author avails himself of this opportunity to call the attention of the reader to the fact, that the three Clinical Reports which constitute the larger portion of the work, are divided into the same number of Sections, each Section treating of the same subjects. By reference to the table of contents, the pages of corresponding Sections in the three Reports may be found; and it is respectfully suggested that corresponding Sections in the three Reports be read in succession, instead of reading the Reports, as a whole, in the order in which they are printed.

PREFACE.

In submitting the following work to the medical public, it is proper that the reader should be made acquainted with the circumstances which led to its preparation, and with the manner of its publication. At the annual meeting of the New York State Medical Society in February, 1850, the scientific subject which elicited most discussion was the identity or non-identity of the forms of fever now commonly known as *Typhus* and *Typhoid;* and a committee was appointed, on which the author was placed as chairman, to collect facts relating to Continued Fever, and report at the next annual meeting. The assignment of this duty led the author to examine the cases, occurring under his own observation, the histories of which he had recorded, and finding the number considerable, he concluded to subject them to numerical analysis; but finding, in the prosecution of this task, that the results would not well admit of being orally submitted at the meeting of the Society, and also that they would occupy more space than could be conveniently appropriated to them in the annual volume of transactions, they were published in successive numbers of the Buffalo Medical Journal, and subsequently presented in that shape as a report to the Society. The first one hundred and thirty-one pages of the following work are occupied by this Report. During the autumn of 1850, and the winter of 1850–51, another series of cases passed under observation, at the *Buffalo Hospital of the Sisters of Charity,* the institution at which most of the cases forming the basis of the report just mentioned had been observed. Desirous of ascertaining how the results of an analysis of this second collection of cases would compare with those of the first analysis, the labor required for that object was undertaken in the summer of 1851, and the results published, as before, in successive numbers of the Buffalo Medical Journal, under the title of a "Second Clinical Report on Continued Fever based on an analysis of forty-eight cases.' As a supplement to this, and the preceding Reports, were contributed some remarks on the 'Symptoms distinctive of Typhoid and Typhus fever; the identity of these two types; the diagnosis, etc.' A paper on 'the management of Continued fever' was also added. This second report, with the appendix, extends from page 131 to page 304, covering one hundred and seventy-three pages. Again, during the autumn of 1851, and the winter of 1851–52, another series of cases more numerous than before, passed under observation, during six months service as attending physician to the institution already mentioned, and, during the present summer, the author has again yielded to the desire to study the facts contained in a new collection of cases. The results of this last analysis have also been published in the Buffalo Medical Journal under the title of 'Third Clinical Report on Continued Fever based on an analysis of sixty-four cases.' This report, following the remarks on the management of Continued fever appended to the Second Report, embraces fifty-four pages of the following work. As appendices to the third report, the work contains two papers. The first of these is on the 'morbid appearances after death, (exclusive of intestinal lesions,) distinctive of Typhus, and Typhoid fever.' The facts contained in this paper are borrowed from publications by Dr. William Jenner, Prof. of pathological anatomy in University College, London. Dr. Jenner communicated for the Edinburgh Monthly Journal of Medical Science, in a series of articles commencing with the No. for April, 1849, and ending with the No. for April, 1850, an analysis of the symptoms and morbid appearances in sixty-six cases of Continued fever, embracing the two types, Typhoid and Typhus, the object being to settle the question of the identity or non-identity of the two types by a comparison of the phenomena presented during life, and disclosed by the scalpel after death. The last of these articles was published about the time that the first of the three analyses upon which are based the reports contained in the following work, was commenced. The author, however, was acquainted with Dr. Jenner's contributions only by an occasional reference to them in some of the Medical Journals of this country, prior to the completion of his three reports. The papers referred to have not been republished in the United States, and the only opportunity of consulting them which the author has enjoyed, was recently during a short visit at the city of New York. At that time he copied the section devoted to a comparison of the morbid appearances, exclusive of the intestinal lesions, which appear in the following work, but he has not yet been able to compare the results of the analysis of symptoms by Dr. Jenner with those which appear in the three reports submitted in this volume. It would have been interesting to have referred to

Dr. Jenner's results during the preparation of these reports had it been practicable. The second paper following the third report, relates to *Relapsing* fever, and presents the results of an analysis of fifteen cases, among those observed during the autumn of 1850 and the winter of 1851–52 characterized by the occurrence of relapses, and, as the results of the analysis show, by other of the features which are said to belong to an affection recently described by Dr. Jenner, and others, as a distinct form of continued fever. The two papers just mentioned have also appeared in the Buffalo Medical Journal, and cover seventeen pages of the following work.

Finally, in collecting the foregoing reports, etc., for publication in the present volume, the author concluded to add a memoir on the 'Transportation and diffusion, by contagion, of Typhoid fever, exemplified in its occurrence at North Boston, Erie Co.' The reasons for inserting the memoir in this volume will be found in the propriety of the connection with the preceding pages so far as relates to the nature of the subject, and in the interest and importance which, in the author's estimation, belong to the facts therein contained considered in their bearing on the question of contagion.

So much for the origin and preparation of the work. The manner of its publication should now, in justice to the author, be explained. During the publication of the first report in the Buffalo Medical Journal, the author was desirous of having it issued separately, and an edition of a thousand copies was accordingly struck off, as successive portions appeared in the Journal. A small part of the report remaining to be prepared, the edition was not issued prior to the following summer, and then deferred in order to include the second report. Again, it was deferred until the present summer in order to embrace the third report. The printing of the volume has thus been going on, intermittingly, during the past three years, being executed only as fast as successive portions were inserted in the Medical Journal. This must be an apology, not only for some typographical blemishes which may be discovered, but for defects in the arrangement of the matter contained in the work. Were it proposed to prepare a treatise on Continued fever after the three reports had been published, based on the facts therein contained, the plan adopted would be much more convenient for the reader, and altogether better. The results of the different analyses might then be brought together, and the work condensed by excluding some details which might with advantage be dispensed with.

If the author might presume to entertain any expectations of a degree of interest in the present volume being manifested by the medical public sufficient to encourage the undertaking, he should venture to look forward to the task of remodeling the work for a second edition. As the work is now arranged, the inconvenience attending the disconnection of parts which relate to similar subjects, has been obviated, as far as practicable, by prefixing a table of contents, by means of which the reader can readily refer to the same sections in the different reports; and it is suggested, as the best mode of reading the work, to consult, with the assistance of this table, in connection' corresponding sections of the three reports.

In conclusion, the author by no means flatters himself with the belief that the work will be found, by the majority of medical readers, attractive. On the contrary, he is well aware that, a large portion being devoted to dry statistical details, it will generally be regarded in quite a different light. It would, however, be affectation not to avow an indulgence of the hope, that, even as respects these details, it may be thought by those whose approbation he would be most ambitious to obtain, to contribute somewhat to the study of the natural history of the different forms of continued fever, and to the aggregation of facts having important bearings on diagnosis, pathology and therapeutics.

BUFFALO, July, 1852.

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ERRATA.

The reader is requested to make the following corrections:—

Page 86, seventh line from the top of the page, for the first *ten*, at the beginning of the line, read *nine*; and for the second *ten* read *two*.

Page 129, last line on the page, for 203, read 38.

CLINICAL REPORT

OF

CONTINUED FEVER,

BASED ON AN

ANALYSIS OF FIFTY-TWO CASES.

HAVING preserved histories of a considerable number of cases of Continued Fever, I propose to analyze them, and report the results.

The first step in the analytical investigation, is to separate and classify all the important particulars embraced in the histories of the cases that have been collected. This has been already done. All the important circumstances occurring in the progress of every case (so far as recorded) have been selected and distributed in appropriate divisions. The labor which even this has required, can be best appreciated by those who are practically conversant with such tasks. In order to collocate the facts in the classes to which they belong, it was necessary that the examination of the history of each case should be repeated from twenty to thirty times. Multiplying the whole number of cases by the number of perusals of each case, will afford some idea of the tediousness of the process.

This is but a preliminary stage of the analysis. To develop useful results, the details thus brought into juxtaposition must be farther investigated. How shall this be done? in other words, how are these classified facts to be interrogated? Some may possess interest and value in themselves—isolated from the others—but, for the most part, it is by *enumeration* and *comparison* that the fruits of the analysis are to be acquired. It will be an object to determine, whenever practicable, the numerical proportions in which the different traits, symptoms, etc., belonging to the general history of the disease, respectively occur. That is to say, with regard to each of these particulars, in how many of the whole number of cases analyzed is it found to be present. This result is obtained by the simple process of counting. In this way is ascertained the numerical ratio which each bears to the whole number of cases, and, by comparison with each other, the mutual relations of all of them in this respect. By such enumerations, sufficiently often repeated, are developed the laws of a disease in so far as concerns the relative frequency of the production of the various particulars which compose its natural history. And the knowledge of these laws has other advantages than merely the gratification of a taste for statistics. If certain events, or symptoms, be proved to be to be constantly associated with a disease, and the same events, or symptoms, be proved not to be present, with any degree of constancy, in other diseases, it is a logical inference, that some very intimate connection subsists between the events, or symptoms, and the disease. This is an important result of numerical analysis, notwithstanding we are not able to penetrate farther by this method of investigation, and explain the nature of the bonds which bind these events, or symptoms, to the disease. The knowledge of the existence of such connections is certainly important as a point of departure for other investigations instituted with a hope of penetrating deeper into the mysteries of pathology. In like manner, events which are proved by enumeration to be not constant, but more or less frequent in their occurrence, may be considered as proving contingent relations to the disease in proportion to their frequency, or they may be proved to be purely accidental; and thus may be determined, not only what particulars intrinsically belong to the disease, but the relative degrees of relationship which other particulars sustain to it, and that certain events are to be excluded as having no real connection with the disease whatever. This kind of knowledge, moreover, has an important bearing on diagnosis, for, in proportion as an event or symptom is constant, or more or less frequent, is its diagnostic value to be estimated, provided, always, that it does not occur, or is far less frequent in its occurrence, in other diseases. Numerical analysis, therefore, tends to establish the relative importance of the several symptoms of disease as diagnostic criteria of the presence of that disease.

To follow out the trains of inquiry to which the foregoing considerations lead, would be to engage in discussions respecting the resources and limitations of the "*numerical system*," foreign to my present purpose.

Another mode of interrogating the facts contained in a collection of recorded cases of disease, is to compare the different cases with each other as respects associated symptoms. We find, for example, in a greater or less number of cases, a certain symptom; now, in the cases which present this symptom, do we always find certain other symptoms associated, and in the cases not presenting the symptom, are the associated symptoms absent? If analytical examination establishes any such relations, they involve, as a logical inference, some dependent connection between the symptoms thus associated in different cases, although the problem still remains to be solved, which of the symptoms are causes, and which effects, or whether all may not be alike effects of an unobserved, or inappreciable cause.

Again, the cases may be divided into several groups, and comparisons instituted between the groups, in order to ascertain what phenomena, or facts, belong to one or more groups, which do not belong to the others. We may thus be led to establish relations between the distinctive features upon which the division into groups was based, and other circumstances less obvious to observation, which the analysis and comparison reveal. Thus, we may separate fatal cases from those not fatal, and if we should chance to find in all the fatal cases certain characters which are not present in those cases which are not fatal, it would be a fair presumption, to say the least, that some connection existed between these characters and the fatal issue; at all events, knowledge of these characters would have an important practical bearing on the prognosis.

These few remarks are offered, by way of introduction, simply to suggest some of the leading objects to be kept in view in an analytical study of the data embraced in the records of clinical observations, foregoing discussions respecting the nature and scope of the logical principles involved in the application of what is known as the *numerical system* to investigations of disease. The latter is an highly interesting and important subject, but it is altogether too profound and extensive to be treated in an incidental connection. The value of this method of investigating medical truth is doubtless as much exaggerated by some, as it is underrated by many. In general terms, its advantages may be said to consist, not only in the development of a much greater number of results, but in rendering medical observation and experience vastly more precise and accurate. But it is hardly less desirable to understand its limitations, than to appreciate its advantages; and, in general terms, it furnishes data for delineating with completeness and correctness the *natural history* of diseases, it discloses relations between the events, or symptoms, of disease, it leads to a knowledge of laws regulating the succession of morbid phenomena; but it fails to penetrate the hidden springs upon which the observable characters of disease are dependent, it cannot unfold the links connecting those phenomena which are found to sustain relations with each other, and it leaves unexplained the laws the existence of which it declares.

To be satisfied of the very great utility and importance of recording cases, and subjecting them to analytical examination, it is only necessary to compare the general impressions which are formed while cases are under observation, with the results obtained, subsequently, by enumeration and comparison. These results are frequently as unexpected to the analyst, as to others: they often conflict directly with the anticipations derived from observing and recording the cases while in progress. This fact points to the great source of error in the medical experience of those whose inductions are based on facts retained in the memory alone. It is exceedingly difficult, as the phenomena of disease pass under observation, for the mind to resist becoming committed to generalizations which are often immature and erroneous; and when the mind is thus committed, it is equally difficult to continue observations fairly and impartially. Every person who studies the operations of mind in others, or who candidly reviews his own intellectual experience, must be convinced of the truth of this remark. How common is it to hear assertions made in the most positive manner, that in all cases of a particular disease, certain things are so and so—assertions made to sustain some peculiar views of pathology, diagnosis, or therapeutics; when a few observations by one who is unbiassed, or skeptical as to the correctness of the assertions, suffice for their disapproval. It does by no means follow that such rash declarations denote either dishonesty or stupidity; but they show that the mind, without vigilant watching, imposes upon itself. The prime error is in arriving at conclusions too hastily, without sufficient data, or proper investigation. So soon as this false step is taken, the mind is constantly seeking for evidence to sustain its position. Facts incompatible with such a position are not only overlooked, or excluded from the memory, but, sometimes, by an obliquity, and almost perverseness of judgment, even appear to sustain the false views which are pertinaciously cherished. This, it will be admitted, is a highly colored representation, but it is not a fancy sketch; exemplars are not so rare as not to be occasionally met with; of a lesser degree of the self-deception described, illustrations are abundant, and there are few so fortunate as to escape altogether the influences, alike imperceptible and untoward, of erroneous preconceptions, upon the powers both of observation and ratiocination. Hence originate the "false facts" with which medicine abounds, and that *experience* which is worse than valueless. The practice of recording observations, and submitting them to careful analysis, is of inestimable value, not only in the greater number, and better character of the results developed, but in cultivating a habit of mind which precludes error by withholding judgments, and accepting only as truth results elicited by adequate, trustworthy investigations. The whole philosophy of this subject is admirably embodied in the sentiment of Rousseau, selected by Louis as the motto for his work on Fever:—"*Je sais que la verite est dans les choses, et non dans mon esprit que les juge, et que moins je mets du mien dans les jugements que j'en porte, plus je suis sur d'approcher de la verite.*"

After the incomparable work of Louis giving the results of his researches on Continued Fever compared with other acute diseases, and subsequent reports by several distinguished observers, it may perhaps appear a gratuitous, if not a presumptuous undertaking to make choice of cases of this affection, as a subject for analytical study. The elucidation, however, which the disease has already received, renders it more interesting, and scarcely less important, to prosecute continued researches. Were the results to be the same as those previously obtained, the labor would by no means be uselessly bestowed, since to confirm truth, is often very desirable, although a humbler attainment than the discovery of it. But other advantages are secured by a series of analyses of cases of the same affection occurring at different periods and places, and under a variety of circumstances. If the results are not uniform, the variations are to be attributed to the disturbing or modifying influences incident to time, situation, and other circumstances; and we may thus learn what belongs to the disease *per se*, and what is due to extrinsic causes. It is at once obvious that this kind of knowledge is highly desirable. For a similar reason it were probably better that a number of cases occurring during a succession of years should be subdivided—those occurring within the space of one or two successive years being grouped together, and each group analyzed separately. In view of this consideration, I have deemed it best to analyze the cases I have already collected, without waiting longer to increase the number.

Of the fifty-two cases which have furnished the data for the examination upon which I will now enter, *fourteen* occurred in private practice, and the remainder, *thirty-eight*, were observed at the *Buffalo Hospital of the Sisters of Charity*. I shall consider these as forming two distinct groups. The cases from private practice are recorded less fully than those at the Hospital. They run through a longer period of time, the first case being observed in December, 1845, and the last in June, 1850—a space of five years. The hospital cases were all observed between August, 1848, and March 1850—a space of eighteen months. The circumstances surrounding the patients in private practice, would, of course, be expected to differ in different cases. On the other hand, at the hospital, the patients were similarly situated. Inasmuch as the hygienic condition incident to hospitals, as well as private families, tend to modify, more or less, the symptoms and progress of a disease, frequently preventing a fair exemplification of its natural history, it should be premised that the *Hospital of the Sisters of Charity* presents in all respects a most favorable combination of circumstances for the relief of the sick. The wards, during the time these cases occurred, were not crowded, and were extremely well ventilated. The attendance and nursing could hardly be improved, and was much better suited to the welfare of patients, than in the private houses even of those who can command all the comforts of life. The personal attentions of family and friends, in severe illness, are often unskillful and injudicious, and money cannot purchase the discreet and faithful offices of a *Sister of Charity!*

The records of the cases in private practice were not made at the time of the daily visits; sometimes no record was made for several days, and, in a few instances, the details were noted from memory as the disease was about to terminate.

The histories of the cases in the hospital consists of daily records, (with occasional exceptions of a day or two,) made by myself at the bedside, at he diurnal visit, which was usually in the morning. I can therefore vouch that they are as accurate as I had the ability to make them. I must confess, however, that while arranging the facts for examination, I had occasion to regret that the records had not contained some particulars of which frequently no mention is made, either positively or negatively. In this respect the histories are far less complete then I could wish them to be. This, however, does not affect the accuracy of the analysis in so far as the facts are recorded.

The phrase *Continued Fever* is used, generally, in a generic sense, embracing two or more species of febrile disease. The distinctions between what have been termed *typhus*, and *typhoid* fevers, have, of late years occasioned much discussion by medical writers, and practitioners are not agreed whether to regard the different types thus distinguished, as really and essentially distinct forms of fever, or not, some contending that they are different febrile affections, others that they are essentially identical. The views which the writer has hitherto entertained on this point are, that cases of continued fever admit of being nosologically discriminated after this division, but that there do not exist sufficient grounds for regarding the two forms of disease as radically and essentially distinct; in other words, that continued fever is one disease, and that the divisions which it may be convenient to make, are based on differences which are nosological, rather than pathological, the uniformity of which, even for nosological purposes, not being perfectly reliable. The distinctions between Typhus and Typhoid-fever, and the subject of diagnosis, will come up more appropriately hereafter. The facts contained in the cases under examination will be studied with reference to the points just mentioned, and, for this end, it becomes necessary to discriminate beforehand, between those cases which have claims to be considered as cases of *Typhus*, and those which are properly cases of *Typhoid* fever. Applying the rules of discrimination as laid down by those writers who maintain that the two forms of disease are essentially distinct, and rejecting as indeterminate all cases in which there exists any room for doubt as to the type, the result is as follows: of the *fourteen* cases in private practice *twelve* are distinctly cases of *Typhoid* fever; one was a case of *Typhus*, and one is *doubtful* from absence of sufficient data in the record. Of the *thirty-eight* hospital cases, *eighteen* were cases of *Typhoid*, and *twelve* were cases of *Typhus* fever; *eight* admitted of some doubt.

Another basis for a division of cases in order to institute comparison of the facts belonging in each, is the issue of the disease. Of the *fourteen* cases in private practice *four* were fatal. Of the *thirty-eight* in hospital practice *thirty-one* recovered.

Of the fatal cases in *private* practice, in *two* the disease was of the *Typhoid* type, in *one* the type was considered doubtful, and the only case of *Typhus* in this group proved fatal.

Of the fatal cases in hospital, *two* were of the *Typhus* type, *four* were of the *Typhoid* type, and in *one* the case was doubtful.

The ratio of mortality between the hospital cases, and those in private practice will be observed; the former being about 13½, and the latter 22½ per cent., showing, in so far as a comparison of these two groups of cases go, a superiority in the hospital management of the disease.

Something should, perhaps, be said concerning the correctness of the diagnosis in all the cases set down as cases of continued fever. In places where both remittent and continued fevers prevail, practitioners sometimes confound the two, and unless the reader can have faith to believe that this, or any other error of diagnosis has been avoided in the present collection of cases, he can, of course, attach little or no importance to the results of the analysis. It is obviously difficult for the writer to furnish evidence of his competency to discriminate, practically, the disease under consideration, from other affections. The reader must estimate, as he best may, the grounds for reliability on this score. This assurance, however, may be given, that the utmost care has been taken to admit into the collection those cases only which, in the writer's opinion, were undoubtedly cases of continued fever, all recorded cases which seemed to him in the least degree doubtful, having been rejected.

In proceeding now to present the results which may be developed by the study of the cases under consideration, together with such considerations as, in connection therewith may be suggested, it will be most convenient to follow the order pursued in the analytical process already performed, adopting as many different sections as there are classes in which the events, symptoms, etc. of all the cases have been distributed.

SECTION FIRST.

Age, Sex, Occupation, Civil Condition, Nativity, Habits, Season, Constitution and previous health of the Patient, Period of residence in this Country and in this City, Duration of the disease before coming under observation.

Age.—The ages of the private patients are given in all but two cases, i. e., in *twelve* cases. Of these *ten* are cases of *Typhoid* fever. The maximum age of these cases is *thirty-four*, the minimum age, *seventeen*. The mean age is 23 7-10. Of these *ten* cases, *two* proved fatal. The ages in these *two* cases were 21 and 34. The only case of Typhus in this group of private cases proved fatal, the age being 25. The only case indeterminate as to its being *typhoid* or *typhus*, proved fatal, the age being 40.

In the *hospital* cases, the ages are given in all but three cases. Of *seventeen* cases of the *typhoid* type in which the ages are given, in *one* case the age was 45; in *one* case the age was 35; in *one* case, 24. In the case of the youngest patient the age was 13. In the other cases, 13 in number, the patients were between 17 and 24 years of age. In six cases the age was precisely 20. The mean age is 22 2-17.

Of *ten* cases of *typhus* in which the ages are given, in one case the age was 50. In *four* cases the age was 20, which was the minimum. The mean age is 26½.

Analysis of large collections of cases of *typhoid* fever by Louis, Chomel, Jackson, and others, have established the existence of certain laws as respects age in this disease. The vast majority of cases occur between the ages of I5 and 30. Cases occurring after 40 are extremely rare, although they are occasionally met with. *Typhus* fever, on the other hand, evinces far less regard for age.

The results given above, correspond very closely with those obtained from observations by the authors just named, on a larger scale. In the collection of hospital cases analyzed by Dr. Jackson, of Boston, embracing *two hundred and ninety-one* cases, the average age was found to be about 22⅛ years, which, it will be perceived, is the same, with a slight fractional difference, as in the analysis of the hospital cases just made.

The cases of Typhus in our collection exhibit a higher maximum, and a greater mean. The latter, however, is less than it would seem to have been in the observations of others. Prof. Jenner, of the University College, London, in a late report on this subject, states that of forty-three fatal cases of typhus, nearly *one-third* were more than *fifty* years of age. —[*Amer. Journal of Med. Sciences, No. for July,* 1850.]

It remains to compare the fatal cases with those in which recovery took place, with respect to age. The observations of Louis go to prove that the average age of those who recover is less than of those who die with typhoid fever.

Of *sixteen* cases of *Typhoid* in which the ages are given, 4 proved fatal, and 12 recovered. Among the fatal cases was the case presenting the maximum of age (45), and also the case presenting the minimum age (13).

The mean age in the cases that proved fatal, is 24½. The mean age in the cases in which recovery took place is 21 8-12.

Of *eleven* cases of *Typhus*, in which the ages are given, *two* only proved fatal. Among the fatal cases was the case of the maximum age, 50, and the mean age, is 35. The mean age in the cases that recovered is 25 5-9.

The above comparison refers to the hospital cases.

In the group of *private* patients, of 8 cases of *Typhoid*, in which recovery took place, the mean age is 22 6-8. Of two fatal cases, the age in one was 21, and in the other, 34, giving a mean of 27½. In the only fatal case of typhus the age was 25.

In so far as our cases afford results, then, they sustain the deduction of Louis, that the disease is less likely to prove fatal in proportion to the youth of patients.

Sex.—In the cases of Fever analyzed by Louis, and Jackson, by far the greater number were of the male sex. Some instances, however, are mentioned by Dr. Bartlett, in his work on Fever, of collections of a large number of cases in which the number of females preponderated.

In the cases which I have preserved, the number of males very much exceeds that of females.

Of the *fourteen private* patients, all but two were males. Of the *hospital* patients, the number of males affected distinctly with *typhoid* fever, was 17; of females, 1. The number of males affected with *typhus* fever was 10; of females 2. Of the cases in which the diagnosis was indeterminate, five were males and three females.

The disparity in the hospital cases might perhaps be accounted for by the fact that a larger number of males resort to such institutions than females. This explanation, however, will not apply to cases in private practice: and, hence, in so far as from the small number of this group of cases, any inductions are admissible, the inference is, that females are much less likely to be attacked with continued fever than males.

In the cases analyzed by Dr. Jackson, of Boston, the average age of females affected with fever was found to be somewhat higher than that of males. The number of female patients in my collection is too small for comparison on this point.

Occupation.—With reference to the *occupations* of the patients, no relations of the disease to any particular kinds of employment are developed. Of the patients treated in hospital, *three* were mariners, *six* were mechanics of different trades, *fifteen* were laborers, *one* was a *waiter*, one a clerk, *one* a porter, *one* a foreman in a steam mill, *one* a domestic, (female), *one* a chamber-maid, *one* a steamboat cook, and *two* were Sisters of Charity. Of the cases in private practice, *four* were soldiers recently enlisted, *two* were students, *one* a physician, *one* a maker of patterns for castings, *one* a laborer, *one* a housewife, *one* a female without occupation, *one* a male without any particular employment.

Analysis of much larger collections of cases have failed to show the existence of any tendency in particular vocations to favor the development of the disease. That the hospital patients were all in what are generally considered the humbler walks of life, will not be deemed singular, when it is considered that it is for the relief of this class that the institution is chiefly designed.

Civil Condition.—Of the *fourteen* patients in *private* practice, *one* only was married, a female 34 years of age.

Of the *thirty-eight hospital* patients, *one* only was married, *one* was a *widow* and one a *widower.* This, however, which might at first seem a striking result, proves little or nothing respecting any causative influence derived from the unmarried state, when it is considered that the average age of the patients is between twenty-two and twenty-six years, and also that, in so far as the hospital cases are concerned, comparatively few married persons, with any disease, enter the Institution.

Nativity.—Of the patients in *private* practice, *eight* were Americans, *three* were Germans, *one* was an Irishman, *one* an Englishman, and in one case the nativity is not stated.

Of the *Hospital* cases, the nativity of the patients with *typhoid*, is as follows: Americans, one; Irish, seven; Germans, ten. Of the patients with typhus as follows: Americans, one; Irish, eleven; Germans, none. Of the doubtful cases as regards the type of the fever, as follows: Americans, two; Irish, five.

I had doubted whether it were worth while to take the trouble to ascertain the nativities, but the result, in one point of view, is certainly curious. Of twelve patients affected with typhus, all but one were Irishmen. The reader is doubtless aware that Dr. Lombard, of Geneva, Switzerland, and others, have contended that true typhus is of Hibernian origin, and that its appearance in other countries is owing to its importation from Ireland. The result of the present analysis is not given as sustaining this idea, for the recency of emigration is obviously involved, and with respect to this point, the facts have not yet been examined; but the singularity of the coincidence, if it be nothing more, is worthy of note.

Habits.—In the *hospital* cases, the records, with very few exceptions, are defective in information respecting the *habits* of the patients.

In *eight* of the cases in private practice, the habits were good. In four the habits were unknown. In one the attack had been preceded by dissipation, and in one the patient was not intemperate, but irregular and licentious.

Season.—Observations have appeared to shew that while the *typhus* type of continued fever is unaffected by season, i. e., liable to prevail equally at any portion of the year, the *typhoid* type, on the other hand, manifests a predilection for the autumnal months, although it is by no means restricted in its occurrence to the latter. In New England, where typhoid fever is the predominant febrile disease, it is commonly termed the *autumnal* or *fall* fever. The dates of the cases under analysis, were as follows:

Private Cases—Typhoid.—1845, December, *one* case; 1846, January, *one* case, October, *two* cases; 1847, September *two* cases, October, *one* case; 1848, August, *two* cases, September, *one* case; 1849, September, *one* case; 1850, June, *one* case. *Typhus*—1847, November, *one* case. Thus *eight* out of twelve cases of typhoid fever occurred during the months of *September, October, November* and *December.*

Hospital Cases—Typhus.—1848, August, *one* case, November, *one* case; 1849, March, *two* cases, June, *three* cases, July, *one* case, August, *one* case, October, *one* case; 1850, January *one* case, February *one* case, making 12. *Typhoid*—1848, October, *one* case, November, *one* case December, *one* case; 1849, March, *one* case, May, *one* case, June, *one* case, July, *one* case, August, *two* cases, September, *five* cases, October, *one* case, November, *two* cases, December, *one* case, making 18.

Thus, *nine* out of *eighteen* cases of *typhoid* occurred during the months of *September, October, November,* and *December, five* occurring in the month of September; while of the twelve cases of *typhus,* only two occurred during these months, one in October and one in November.

After the month of December, 1849, up to the time when my period of service at the hospital ceased, which was April 1st, 1850, not a single case of typhoid fever was received. During this period, two cases of typhus are recorded, and two cases in which the type is left indeterminate.

The result of the analysis, therefore, goes to sustain the correctness of the observations, above mentioned, respecting the relations of the two types of continued fever to the seasons.

Constitution and health at the time of attack.—In every one of the cases in *private practice,* the *constitution* of the patient might be pronounced good, i. e., none were suffering under chronic disease, or general ill-health. The same is believed to be true of the *hospital cases.* In many cases it is so stated in the records, but in the cases in which this statement does not appear, it is a fair inference that, were it otherwise, the fact would be recorded. In no case is it recorded that the patient possessed a feeble or broken constitution. In so far as my observations go, then, the conclusion is, that persons not possessing good constitutions, are not apt to be affected with continued fever.

The state of health at the time of attack is known in all the cases occurring in *private* practice. In all but two cases it was good. In one of the excepted cases the patient had a short time before had *Pertussis,* from which, however, he had recovered; in the other case, the patient was reduced by lactation, and was laboring under *stomatitis materna.* In the *hospital cases*, the health is stated to have been good in *seven* cases of *typhoid,* and four cases of *typhus.* It is not stated to have been poor in any case, and in nearly all of the cases in which no mention is made of this point, it may fairly be inferred that the health was good, from the patients having been arrested by the disease while pursuing their customary avocations, all of which would require for their performance good health, and from other circumstances of the history. Hence, it seems proper to conclude that, in so far as the present collection of observations affects this point, persons in good health are most apt to be attacked with continued fever.

By the *state of health at the time of attack* is meant, here, the condition prior to the first developement of the *prodromic* symptoms of the disease. The latter, which by some are considered to constitute a stage of the disease, and by others regarded as preliminary to it, will form a subject of inquiry under another division.

Period of residence in this country, and in this city.—The period of residence in the country, and town, where cases of continued fever are observed, has important bearing upon several questions relating to the etiology of the disease. If a patient have recently arrived from a foreign country, it becomes a subject of inquiry in how far may the production of the disease be due to circumstances affecting him before his arrival. Among the circumstances which may be suspected of being involved in the origin of the disease in these cases, are endemic and epidemic influences to which he may have been exposed prior to his embarkation, the confinement and hardships of the voyage, contagion, moral influence of change of country, etc.

Cases in Private Practice.—One of the cases was observed in a neighboring place, and is omitted. Of the remaining *thirteen* cases, *eight* had resided in this city for a period less than six months. Of the other *five* cases, *one* had resided in the city about a year, *one* about two years, and the remaining *three* had resided for a longer period. In *four* cases the patients had recently emigrated to this country. Among the latter is included the single case of *Typhus* in the group of private cases.

Hospital Cases.—Of the *Typhoid* cases the period of residence is recorded in *ten* cases, and nothing on this point stated in *eight* cases. In *seven* of the *ten* cases the patients had recently emigrated to this country. In *nine* of the *ten* cases, the patients had recently come to reside in this city. The periods in the cases respectively, as recorded, are as follows:—six weeks in the country, and four weeks in the city; ten days in the country, and three days in the city; thirteen days in the country, and ten in the city; eight weeks in the city; a few months in the city; five weeks in the city; three and a half months in the country, and eight days in the city; recently in the country; a year in the country, and four months in the city.

In the single case in which the patient had not recently come to reside in the city, the patient had been in the country fifteen months, and in the city twelve months. This was the longest period of residence in any of the *Typhoid* cases in which the records contain information on this point.

Of the *Typhus* cases, the period of residence is stated in *ten* cases, and the histories are defective on this point in *two* cases. Of these *ten*, the patients had recently arrived in this country and place, in *eight* cases. Of the two remaining cases, the patient in one case was a native, and permanent resident; in the other case, the patient had been a resident of the city for ten years. The periods in the *eight* cases respectively, as recorded, are as follows;—in the country six months; five or six weeks in the country; in the country a month; just arrived in the country; in the country a week; recently in the country, and six weeks in the city; twelve days in the country, and four days in the city; just arrived in the country and city.

Duration of the disease before coming under observation.—In *nine* of the cases in private practice, the disease was observed from its commencement. Of the remaining (5) cases, *one* came under observation on the *fourth* day after the attack, *two* on the *seventh* day, *one* on the *fifth* day, and *one* on the *tenth* day. Of the fatal cases, *two* came under observation at the commencement of the disease, *one* on the *seventh* day, and *one* on the *fifth* day. Of the *Hospital* cases, four are deficient in information on this point. Of the remaining thirty-four cases, five only came under observation at the commencement of the disease; and by the commencement of the disease I mean not to include the prodromic symptoms, which, of course, nearly always exist for a greater or less period before application is made for medical aid, or the relief of an hospital. The duration of the disease prior to observation, varied from *two* to *twelve* days; in the greater number of cases, the period was between *four* and *eight* days. Before coming to the hospital, some had received no treatment, others had been attended by regular Practitioners, and some by Empirics.

The only point of interest under this head, which occurs to me, is to ascertain if there seems to exist any connection between the duration of the disease before coming to the hospital, and the fatal result. Of the *two* fatal cases of *Typhus, one* came under observation on the *fifth* day, and *one* on the *fourth* day. Of the *four* fatal cases of *Typhoid, one* came under observation on the *eighth* day, *one* on the *eleventh* day, *one* on the *fifth* day, and *one* on the *first* day. Of the cases of doubtful type, the only fatal case came under observation on the *eighth* day. The mean duration in these cases is about *six* days, which is about the average duration in the cases which did not prove fatal.

SECTION SECOND.

The Access, its duration and symptoms. Circumstances supposed to have been concerned in the production of the disease.

By the term access I mean to designate that period during which the disease appears to be forming, commencing with the first symptoms of disorder, and ending when the disease becomes fully developed. By some this period is regarded as a *stage* of the disease, sometimes called the forming stage ; others regard it simply as presenting precursors, preceding and ushering in the disease, or the prodromic symptoms of the disease, but not intrinsically belonging to it. Without stopping to present arguments for either of these views, I will proceed to examine the cases under analysis with reference to this period. The chief points of inquiry which possess interest and importance, relate to the *duration* of the access, and to its *symptomatology*.

Duration.—In the *twelve* cases of *Typhoid* fever occurring in *private* practice, the records are deficient in information respecting the *access* in *two* cases. In the remaining *ten* cases, without an exception, the period of access embraced several days; but in most of the cases the precise period is not stated. The record in *six* cases, simply states that it extended over several days; in *one* case, it is stated *four* or *five* days; in *one*, *two* or *three* days; in *one, three* or *four* days ; and in *one* the patient had been in ill health for three weeks.

In the single case of *Typhus* in this group, the period of access was *two* days.

The indefiniteness of these records denotes a feature of the access of the disease which writers on the subject have remarked, viz., the difficulty of fixing, with precision, the precise date of its commencement. Patients when asked respecting the time when they first began to feel ill, generally reply "several days," "three or four days," etc., apparently not being able themselves to decide on the particular day when they ceased to feel well. In such instances the symptoms come on gradually and imperceptibly. On this account it is not practicable always to determine the exact duration of the access.

Nor is it an easy matter to decide on the termination of the *access*. What denotes the commencement (or the second stage) of the disease? This question is not readily answered. The symptoms of the access are generally continued, increased in degree, but not changed in character; nor are any new characters developed which may serve to indicate, with certainty, the termination of the access. My rule has been to pronounce the access passed, and the fever established, when the patient is compelled to take to his bed, i. e., when he feels no longer able to sit up. This rule is somewhat arbitrary, and is by no means perfectly accurate. Some patients, from choice or necessity, will keep about much longer than others. Much will depend on differences in mental disposition as respects apprehension, prudence, etc., with regard to this point. But, with these objections, I know of no single event, or group of symptoms, more available, and in the majority of cases, more correct than this.

In *hospital* cases it is much more difficult to ascertain the duration of the access than in private practice, patients frequently being received after the disease is more or less advanced, when they are unable to give a correct account of its origin and progress. On examining the histories I have collected, I find them very deficient in information on this subject. Of the *eighteen* cases of *Typhoid*, the information is very indefinite in *twelve* cases; in *four* cases, the disease appeared to have come on with a sudden attack. Of the remaining *two* cases, in *one* the access was of several days' duration, and in the other, *four* days. It is to be presumed that in all instances in which it could be ascertained that the disease came on suddenly, the fact was recorded; and that when the records are silent on this point, the disease came on, as is usual, with an access of several days' duration.

Of the *twelve* cases of *Typhus*, the records are defective in *five* cases; the attack was sudden in *one* case, the access was "several days" in duration in *four* cases, *five* days in *one* case, and *seven* days in *one* case. Of the *eight* cases of doubtful tpye, the attack was sudden in *one* case; the access was "several days" in duration in *three* cases, two or three days in *one* case, and in *one* case the patient had been ill three weeks, (symptoms not ascertained,) and had recovered sufficiently to go to work, when he was suddenly attacked. In *two* cases, the records contain no information.

Of the *three Typhoid* cases proving fatal, the disease came on suddenly in *one*, and the duration of the access was not ascertained in the remaining *two* cases.

Of the fatal cases of *Typhus*, the attack was sudden in *one*, and the duration of the access unknown in the other case.

In the fatal case among those of doubtful type, the access was of several days duration.

The only conclusion to be drawn from the foregoing rather unsatisfactory analysis, is, that generally the access extends over several days, but that the attack, in a small proportion of cases is sudden—a conclusion according with general experience.

The data do not warrant a comparison of the two types in order to ascertain in which is the disease most likely to commence suddenly, and in which the average duration of the access is longest; nor is the comparison of the fatal and not fatal cases, in these respects, of any value.

Symptoms of the Access.—The records of the cases are far from being comprehensive as respects the symptomatology of the access. This is, in part, because sufficient pains were not taken in noting the symptoms, and, in part, because in a large proportion of cases, (more especially those in hospital,) it is difficult, and, indeed, in many instances impossible to obtain a full account of the history prior to the patients coming under observation. In the cases in which the history embraces some mention of the symptoms of the access, generally the circumstances only which are striking, or occasional in their occurrence, are noted, those being omitted which are constant or quite common. I do not, therefore, deem it worth while to count the number of times each particular symptom is mentioned, with a view to determine the relative ratio of its occurrence, but I will simply give a list of the symptoms, with brief comments. They are as follows:

Cephalalgia, a frequent symptom in the cases of both Typhoid and Typhus; *anorexia*, an almost constant symptom; *chills*, in a few cases, with *rigors* more rarely, oftener *chilly sensations or slight shivering; pain in limbs; pain in loins*, not so frequent, or prominent symptom as the last; *sense of debility; lassitude; cough* in three cases of Typhoid, in no case of Typhus, complicated with soreness in the chest in *one* case, and with pains beneath the sternum in one case; *Diarrhœa*, in one case of Typhus, (a fatal case,) and in four cases of Typhoid; *nausea*, and in *three* cases *vomiting*. Of the three *fatal* cases of Typhoid, the following are the symptoms of the access noted, which are more or less peculiar to these cases; in *one* case *delirium at night;* and in one case *tremulousness in the muscles of the face* as in mental agitation; in *one* case *vomiting* and *diarrhœa.*

Of the three fatal cases of Typhus, in two the symptoms of the access were not noted, and in the remaining case the symptoms were, *cough, headach, pains beneath sternum, anorexia, moderate thirst, vomiting and diarrhœa.*

Circumstances supposed to have been concerned in the production of the disease:

In obtaining the previous history of cases coming under observation pains were not taken to inquire concerning the circumstances which might seem to stand to the disease in some causative relation. In the majority of cases nothing is recorded on this subject. Occasionally, however, the patients themselves mentioned circumstances to which they attributed their illness. The instances of this kind, and the supposed causes, and the type of the disease, are as follows:

Excesses of dissipation, continued for several weeks, to which the patient had previously been unaccustomed. (Typhoid.)

A catarrh, or mild bronchitis, accompanied by cough and soreness in chest, in two cases. (Typhoid.)

Bathing in cold water. (Typhoid.)

Exposure to cold and wet on the day prior to the attack, the patient becoming much chilled. (Typhus.)

Drinking cold water when heated. (Typhoid.)

Falling into the canal, and working all day in wet clothing, the patient being obliged to take to his bed on the following day. (Typhoid.)

Several of the patients thought their illness came from "taking cold," but without their having had any symptoms which constitute what is called a "cold," and the attack not succeeded any notable exposure. Many evidently referred their illness to cold under the common impression that most diseases thus originate.

Of those who had recently arrived in this country, the inquiry was generally made, whether sickness prevailed on ship-board; in two instances only was it ascertained that this was the fact. Sometimes the answers to the inquiry were unsatisfactory, but in several instances the patients were certain that no febrile disease existed during the passage.

In the great majority of the cases, no cause for the disease is assigned. In the few instances given in which causes were specified, it will not, of course, be supposed, from their being embraced in their histories, that much importance is attached to them. It is not probable that the circumstances mentioned by the patients as causes, really were so, or, at most, they are only to be regarded, as possibly, exciting causes. And so far as my observations go, continued fever frequently, if not generally, occurs without being preceded by any events which, even in the estimation of patients, stand to the disease in the relation of cause; and, hence, it is a fair presumption in those instances in which an attack follows any of the common causes of disease, that their agency, if they have any, is of a subordinate kind.

In three cases facts connected with the development of the disease seem to have a bearing upon the question of *contagion*. One of the cases referred to, occurred in private practice. Twenty days before the development of the disease, a brother of the patient arrived in the city on a canal boat, and was transferred, first to a hotel, and, two days afterward, to the hospital. He was attended by me both at the hotel and hospital, but a record of the case was not made. The character of his disease was not determined until after his removal to the hospital, when it proved to be a case of Typhoid fever, with the characteristic eruption, etc. While at the hotel the two brothers occupied together a small bed room, and the then well brother, not only remained during the night, but officiated as an attendant throughout the day. The type of the disease, developed twenty days afterward, was typhoid; the case was very mild, and unusually short in its duration, terminating, with a critical perspiration, on the fifth day. A few rose spots were observed on the chest and abdomen. In view of the circumstances just mentioned, it seemed fair to *suspect* that the disease was communicated from one brother to the other.

In the other two cases in which a contagious principle seemed to be involved, the patients were *Sisters of Charity* at the hospital. To the two *Sisters* who had fever, had been assigned the care of all the fever cases, (with the exception of three cases) during the preceding winter, up to the time of their illness. They, alone of all the inmates of the house, became affected with fever. The first that became affected with fever, (sister H.) was attacked in February. She was attacked early in Lent, and had conformed to the rules of abstinence prescribed by the Catholic Church for this season, continuing her laborious duties as before. This is mentioned as a circumstance to which perhaps, something is due in accounting for the development of the disease at that time. The disease was mild, attended with some delirium, no abdominal symptoms, without an eruption, terminating in convalescence on the *ninth* day. The case is included among those of *doubtful type.*

The second (sister N.) was attacked about a month afterward, in March, 1850. Her duties, in consequence of the illness of sister H., had been for the previous four weeks much increased. This case was milder than the preceding, and shorter in duration. It was unattended by abdominal symptoms, and an eruption. It is also included among the cases of *doubtful type.*

That thus the two persons who were especially brought into close and continued proximity to the fever patients, should have contracted fever, no other case of fever being generated within the Institution, certainly can be less rationally explained by the law of probabilities, than by the supposition of contagion.

Assuming that these instances do exemplify the operation of a contagious principle, the facts accord with the views now generally entertained respecting the communicability of Continued Fever, viz., that the disease may be diffused by contagion, which differs in intensity at different times and places, but that generally the disease is not developed except after long continued exposure to the contagious miasm, or under circumstances in which the miasm is greatly concentrated, and, even then, co-operating causes seem often to be required to determine the attack.

It is supposed by those who recognize *Typhoid* and *Typhus* as distinct types of Continued Fever, that the latter is either exclusively, or much more liable to be communicated than the former. The first of the instances just stated, assuming the supposition of contagion to be correct, would establish the communicability of Typhoid. The two latter instances cannot be considered to have any bearing on this point, inasmuch as the patients had been brought into contact with both types of the disease.

SECTION THIRD.

Symptoms referable to the general aspect; Expression of Countenance; Decubitus.—Characteristic changes wrought in the physiognomy, constitute an interesting branch of the symptomatic history of a disease. Such changes may involve various morbid effects. The physiognomy in health consists of several elements, the more important of which are the complexion, the facial muscles, and the eye. These elements, singly or collectively, being more or less modified, the general aspect, and the expression of countenance will be correspondingly altered.

In Continued Fever, some changes in physiognomy almost always occur;

the changes, although not uniform, either in kind or degree, in some instances are striking, and in a measure distinctive.

Under the heading of this section, in the preliminary analysis, I have arranged whatever is recorded in the cases under examination. In several of the histories nothing is stated relative to this point. In these instances here, as with regard to other points, the inference is, that nothing unusual, or striking, was observed; but there probably existed more or less of that *dullness* or *listlessness* of expression, which is very rarely, if ever, entirely absent.

Directing inquiries to the elements of the physiognomy separately, the *complexion* comes first in order. In a large proportion of the cases, the complexion was altered, the face being *reddened*, sometimes of a *dusky* hue, and occasionally slightly *livid*. These changes were evidently due to capillary congestion. They were always more marked in the cheeks, than elsewhere, and sometimes were chiefly observable in that situation. This state of the capillary vessels, as will be perceived when we come to speak of the symptoms referable to the skin, in many cases extended, more or less, over the entire surface of the body, but in some instances it was exhibited on the face when it was not on any other part of the external tegument. It was always exhibited in the face, if present in other portions of the external surface.

I cannot suppose this symptom to have been peculiar to the cases that I have observed, and hence I am at a loss to understand why it has not attracted more notice than it appears to have done with clinical observers, more especially since, in connection with the humoral pathology of fever, it would seem to deserve consideration.*

The redness of the face resembled closely the appearance which the surface presents after exposure to cold, the explanation probably being the same in either instance, viz: retarded circulation of the blood in the capillary vessels. On pressure with the finger the redness disappears, and returns after the pressure is removed. The redness returned less quickly in proportion to its duskiness or lividity, showing that the color is an indication of the degree in which the forces of the circulation residing in the capillary system are depressed. This statement is made from recollection, but is believed to be correct.

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* I do not mean to be understood by this remark that this symptom has escaped observation, but only that, so far as my knowledge extends, it has received less notice than would be expected from its presumed frequency, and pathological relations. Without having taken pains to consult authorities on the point, I cannot call to mind any writer who has alluded to it more distinctly than Dr. Gerhard, of Philadelphia. [See Graves and Gerhard's Clinical Medicine, page 733, and also Dr. Gerhard's account of Epidemic Typhus Fever in Philadelphia in 1836, published in the American Journal of Medical Sciences.] I do not discover that this symptom is embraced in the researches of Louis.

The cases of the *Typhus* and *Typhoid* types present, on comparison, differences as respects this symptom. It was present in a large proportion of the *Typhus* cases. It is recorded present in *eleven* of the *twelve* hospital cases of this type, no mention being made of it in the single remaining case.

On the other hand, in the *eighteen Typhoid* cases it is recorded present in *ten*. In some of the remaining *seven* cases, its absence being stated, and in others no mention made either of its absence or presence. In none of the cases occurring in private practice is this symptom mentioned.

The two groups of cases differed also as to the hue of redness. In the *Typhus* group the hue was dingy or dusky, and in one case distinctly livid. This is noted in *five* of the *eleven* cases. In the *Typhoid* group, on the contrary, in *one* case only, is the redness recorded as dusky, and in *one* case somewhat dusky. As a general remark, the intensity of redness was greater, in a marked degree, in the cases of typhus than in those of the typhoid type, in those instances in which a dusky tint was not apparent. In most of the cases of the latter type, in which the symptom was present, it is stated to have been either moderate or slight. Such qualifications are not given in any of the cases of *Typhus* in which the symptom was present.

It may be suspected that the capillary congestion of the face and surface generally, is dependent on the complication of pulmonary disease, in consequence of which, the free transmission of blood through the lungs is prevented, and its æration compromised. With reference to this point, I have compared the pulmonary symptoms with the symptom now under consideration, in all the cases, and find that this connection does not uniformly exist. Several of the cases in which the congestive redness and dusky tint of the face were marked, presented pneumonic complication, denoted by cough and expectoration, accelerated respiration, and, occasionally, the physical signs of inflammation of the lungs, but these symptoms and signs were absent in other cases in which the appearances of the face were the same; and the lungs evinced notable disorder and inflammation in cases in which no capillary congestion is recorded. To speak with greater exactness of the cases of *Typhus*, congestive redness of the face, and marked disturbance of the respiration, were associated in *nine* cases. The congestive redness was present without notable disturbed respiration in two cases.

Of the cases of the *Typhoid* type, in but one case was congestive redness associated with marked disorder of the respiratory function, and in *two* cases in which pneumonitis existed, that symptom is not recorded as present.

Thus it appears that the condition of the capillary vessels is not to be attributed to a morbid condition of the lungs, or to derangement of the functional activity of the latter organs. It is worthy of note, however, that in *typhus*, in a large proportion of cases, capillary congestion is associated with pulmonary affection, while in *typhoid*, the absence of such a connection would seem to be the rule. It is highly probable that both pulmonary disorder and congestion of the surface, may be effects of the same prior morbid condition. It is not likely that capillary congestion in Continued Fever is limited to the surface, when it is present in the latter situation. Internal parts, could they be observed, might be expected to present similar appearances. The lungs, as is well ascertained, are liable to become congested during the febrile career, and the form of pneumonitis which usually occurs as a complication of fever, called *pseudo pneumonitis*, is usually supposed to result chiefly from passive engorgement of these organs. This complication, however, is thought to be far more liable to occur in *typhus* than in *typhoid* fever. The morbid condition then, whatever it be, which determines the congestive redness in the skin, is the occasion of congestions elsewhere, which may, or may not be sufficient in degree to produce a sensible physical change in the congested organs, leading to marked disturbance of their functions. In congestions, pervading the capillary system of the general circulation, the lungs are especially prone to become involved. This is probably the fact in cases of *typhoid* as well as *typhus*, in which congestive redness of the surface is observed, but not in a degree sufficient, generally, to lead to notable pulmonary complication, or marked disorder of the respiration. The latter consequences, it would be expected, should much oftener be present in *typhus*, inasmuch as in this type, not only is capillary congestion present in a much larger proportion of cases, but it exists in a much greater degree. This pathological reasoning is submitted as rationally consistent with the facts which preceded and suggested it.

And now the question can hardly fail to arise in the mind of the reader, upon what prior morbid condition *does* the state of capillary congestion depend. Is it dependent on the impairment of the nervo-muscular forces involved in the circulation of the blood, or is it incident to a morbid alteration in the blood itself? This question opens the way for a wide discussion, and would embrace topics of a speculative character. These I shall forego, as foreign to the historical plan of this memoir, and confine myself to the inquiry whether the cases in my collection can be made subservient to the development of any farther results having a bearing on this inquiry.

If the congestion of the capillary vessels depends merely on the condition of the forces carrying on the general circulation, it would be expected that in those cases in which the former was marked, the pulse, the thermometer of the forces presiding over the movement of the blood through the heart and arteries, would denote a corresponding embarrassment of the latter. A comparison of the pulse in those cases in which capillary congestion was present, with those cases in which it was absent, is therefore desirable. It is not important to enumerate with respect to this point, but simply to ascertain if, in my collection of cases, the presence of capillary congestion is uniformly associated with symptoms denoting a degree of depression of the forces carrying on the general circulation, greater than when capillary congestion is not present. The symptoms by which a depressed or embarrassed circulation is to be estimated, relate to the pulse and the impulse of the heart. As regards the pulse, in proportion as it is frequent, feeble and irregular, the circulatory forces are to be regarded as compromised by the disease.

An examination of the cases with reference to this point, shows, that in much the larger proportion of cases in which capillary congestion is noted, the frequency and feebleness of the pulse were not greater than in cases in which no capillary congestion was observed. I counted *twenty-two* cases (including those of typhus, typhoid, and doubtful types,) in which capillary congestion was not associated with *unusual* disorder of the general circulation. In a few cases (*four*) this connection was found to exist; and in some cases (*three*) there existed notable disturbance of the general circulation without congestive redness. In view of these results, is it not fair to arrive *par voie d'exclusion* at the inference that the source of the retarded circulation in the capillary system of vessels, in continued fever, lies in some morbid condition affecting these vessels, or their contents, more directly than through the intervention of the general circulation? That this morbid condition relates to the blood itself, rather than to the vessels, many considerations might be adduced to render probable, but this would lead us beyond the circle of our facts.

In connection with the pathological inquiries suggested by the symptom which has just been considered, it would be interesting and important to determine, to what extent, and under what circumstances, the symptom is present in other diseases than continued fever. This must be deferred for want of sufficient data for such a comparison.

I proceed now to consider elements of physiognomy other than the *complexion*. These are the *facial muscles*, and the *eye*.

The muscles of the face may present appearances representing the condition of the nervo-muscular forces generally, and they may also serve, to some extent, as indices of the mental state of the patient; in the latter point of view, however, they are generally to be taken in connection with the eye, and both together constituting the *expression* of the countenance.

As representing the nervo-muscular forces, the appearances which are found in the records of my cases are as follows: In *two* cases, *dropping of the lower jaw* is mentioned as a striking symptom. In both cases, the disease, judged by other symptoms, exhibited great severity, and in one of the cases it proved fatal. In the latter case, the symptom was associated with extreme prostration, and sliding down in bed. In the case that remains, the muscular prostration was very great.

Tremulousness of the muscles of the face, as if from mental emotions, was another symptom noted as present in *two* cases. In one of these cases, the disease proved fatal. In this case the symptom was much more marked, and was associated with tremulousness of the hands, and, at times, inability to protrude the tongue.

Abolition of the expression peculiar to the individual, was, of course, present in the fatal cases, as it generally is in different diseases, toward the close of life, entering into what is known as the Hippocratic countenance.

In speaking of the two preceding symptoms, i. e., depression of the lower jaw, and tremulousness of the facial muscles, it is not to be understood that they were present only during the last moments, for, at this period, they are not unusual, but during the career of the fever, prior to the last stage.

The *expression* in the greater number of the cases is described as *dull, heavy, stupid, vacant*, terms expressing different degrees of the same general aspect. This physiognomical appearance, in a large proportion of fever cases, is striking, and, in a measure, pathognomonic. There is a lack of expression, a deficiency, not only of animation, but intelligence, a look of stupidity and indifference, which, to the practised observer, often suffices to reveal, at a glance, the character of the disease. This general rule, however, is not without exceptions. In *one* of my cases, the habitual expression was that of mirthfulness, and in another case, the patient was cheerful and generally smiling. In another case, the countenance during the whole career of the fever wore a marked lugubrious expression. These appearances are certainly rare. In the great majority of cases, patients with continued fever manifest by the countenance, or in other ways, neither agreeable nor painful emotions.

The only peculiarities which I have noted, not included in the foregoing summary, are, an expression like that of a person confused, and attempting to collect his ideas; an expression of astonishment; an expression of wildness, the latter being associated with active delirium.

The *decubitus* is a point upon which the records of the case, for the most part, are silent. In a few of the cases, it is stated that the patients lay on the back, and generally, in connection, the tendency to slide downward in bed is noticed. These were invariably cases of great severity of disease, attended by extreme muscular prostration. In other instances, it is mentioned that patients voluntarily assumed a posture on the side, as an indication either of mildness in the disease, or abatement of its severity. All who have been accustomed to observe cases of this affection, have noticed that, as a general remark, the patient lies on the back, in proportion to the gravity of the disease, maintaining the same position, seldom, or never changing it of his own accord; and in cases of extreme prostration, the body yields to the force of gravitation, and, the head and trunk usually being elevated, tends constantly to slide downward, so that unless prevented by a foot-board, or by the attentions of those around him, the feet will be found sometimes to protrude beyond the bed.

SECTION FOURTH.

Symptoms referable to the Nervous System. Mind. Sleep. Coma. Senses, and Sensibility. Muscular Contractions, etc.

The *nervous system*, in Continued Fever, is almost invariably, if not uniformly, the seat of some morbid phenomena. So constantly is this the case, that, as the reader need not be informed, a doctrine of the pathology of the disease, which has many supporters, if, indeed, it be not still the commonly accredited theory, attributes the primary and essential morbid changes, constituting, *par excellence*, the disease, to this portion of the organism. The symptoms referable to the nervous system are various in kind, as well as in degree. Some of the more prominent of the several sources of symptomatic events are enumerated in the heading to this Section, and I will proceed to consider them under separate divisions.

Mind. Under this division, the subject of *delirium* first suggests itself. In much the larger portion of instances, more or less delirium is manifested during the febrile career, but cases are far from exhibiting uniformity with respect to this symptom. The delirium is sometimes *active*, that is to say, the patient requires to be closely watched, and, possibly, to be placed under physical restraint. Oftener it is *passive* in its character, denoted by incoherent conversation, and muttering. In the lightest shades of mental aberration, the patient occasionally forgets where he is, and the circumstances of his illness, but recovers himself in a few moments. This transient aberration is most apt to occur on first awakening from sleep.

What is the relative frequency in occurrence of the two varieties of delirium just mentioned, viz., *active* and *passive* delirium; and what relations does each kind have to the different types of fever, to the issue of the disease, and to associated symptoms? These are the inquiries which are to direct the analysis of the data before us.

Of the *twelve* cases of *Typhoid* fever in *private practice*, the delirium might be pronounced active in *one* case. Passive delirium, more or less in degree, existed in *eight* cases, and no delirium was exhibited in *three* cases. In the single case of *Typhus* in this group, the delirium was not active; it was active in the single case of *doubtful type*.

In the *hospital cases*, of the *eighteen* cases of *Typhoid, active* delirium was present in *five*, the delirium was *passive* in *nine*, and *four* cases exhibited no delirium.

Of the *twelve* cases of *Typhus*, not *one* manifested *active* delirium, the delirium was *passive* in *eleven* cases, and no delirium was exhibited in *one* case.

Of the *eight* cases of doubtful type, *passive* delirium existed in *seven*, and no delirium was apparent in *one* case.

The above enumerations show that the existence of more or less delirium is the rule in continued fever of either type, but that exceptions to the rule occur in both types; that this rule obtains more generally in *Typhus* than in *Typhoid*, and it is chiefly in cases of the latter type that the delirium is active in its character. Should the latter point be established by a sufficiently large number of observations, it may sometimes be available for diagnosis, as respects the two types, at a period of the disease before other distinctive features have become developed.

In order that the above results may be appreciated, the principles upon which the distinction between *passive* and *active* delirium has been made, requires some explanation. As in every instance in which a division is based chiefly on difference in degree, the dividing line is not easily fixed, and must be determined by a rule somewhat arbitrary. Between a slight shade of aberration, and an excess of activity of delirium, there is a wide interval; but this is not the case at the point where the two extremes approximate; in other words, it is difficult to say precisely what amount of delirium ceases to be passive, and becomes active. The course I have pursued, practically, as nearly as I can define it, is this—when the incoherency has been boisterous, manifested by much and loud talking, shouting, etc., I have considered the delirium *active*, although the patient may not have required coercion. On the other hand, occasional, or even frequent efforts to get up, if the patient be at once persuaded to lie down, or to return to his bed, have not been sufficient to constitute *active* delirium, but the term has been restricted in its application to cases in which such efforts have been not only frequent, but perseveringly repeated, rendering constant supervision, or even mechanical restraint necessary.

The characters which belong, in general, to this symptom, as it is presented in continued fever, and its diversities in the different cases under examination, claim further notice than merely to distinguish them as active and passive. I will therefore devote some space to these points, without taking pains to obtain numerical results.

In the majority of cases in which passive delirium existed, the manifestations consisted in the patients talking to themselves, muttering, asking questions which were irrelevant, or inconsistent with their situation, frequently relating to business affairs, declaring that they were well, and desirous to go home, and in attempting to get out of bed. The effort to get out of bed, seemed sometimes like sleep-walking, and when patients assigned any motive, it generally differed at every separate attempt. The request to lie down was usually readily complied with, and was followed by quietude for a time, when the effort would perhaps again be repeated, and so successively, with intervals of greater or less duration. It happened several times, when patients had not given any evidences of mental aberration which seemed to require them to be carefully watched, that they succeeded in getting out of bed unobserved, and in partially, or entirely dressing themselves. An attendant is liable to be deceived by the representations of the patient, and suppose that it is proper to allow him to get up. For example, in one of the cases, on the third day, before the diagnosis had been positively made, I found the patient, at the time of my visit, sitting up, entirely dressed, saying he was quite well, that his mother had just arrived in town, and he was going out to see her. On being desired to undress and go to bed, he complied without the least reluctance. The attendant had supposed him to be as much better as he professed to be, and had not interdicted his dressing, which he was able to accomplish, not being, at that stage of the disease, greatly prostrated.

In none of the cases does there appear to have been a persistent delusion, giving a fixed subject and purpose to the conversation or movements, but on the contrary, it would seem that a constant succession of incongruous ideas characterizes the delirium of continued fever.

The delirium was observed invariably to be greater during the night, than in the day time. In some cases, the only manifestations occurred at night, the patient apparently being rational during the day.

In *four* instances, paroxysms of weeping and sobbing occurred, as in some forms of hysteria, the patients being all of the male sex. In two of these cases, the disease proved fatal, and the paroxysm occurred, in each, at the latter part of the disease. In both these cases, the cause assigned for grief was, that the patient had committed some heinous fault which would be followed by disgrace. In each of the two cases in which recovery took place, the weeping paroxysm occurred near the period of convalescence. In one of these cases, the source of grief seemed to be apprehension of death; in the other case, the patient said he would not tell why he wept. This variety of mental aberration presents a striking contrast with the kind of delirium usually present in continued fever, which does not involve any acknowledgment, or apparent consciousness, either of bodily or mental distress.

A trait somewhat peculiar to the mental condition in fever, is that the patient generally replies to questions rationally. Even in cases in which spontaneous incoherency is marked, when the attention is directed by a question, the mind appears to be capable of rational action, but immediately afterward, perhaps, relapses into its former dreamy state.

It does not follow, however, because replies to questions are consistent, that they are therefore correct. This is far from being the case. The statements given by patients with fever are often erroneous, when their intelligence appears perfect; and, hence, they are not to be relied upon for information of the previous history, or the daily events of their illness.

We are apt, also, to be deceived in estimating the mental condition of fever patients by the absence of manifestations of delirium. In some of the cases that I have observed, I had supposed, during the progress of the disease, that the intelligence was in no degree compromised, when, after recovery, patients have assured me that they had a very imperfect recollection of what had transpired. For example, in a case occurring in private practice, the patient had been attended by a homœopathic practitioner for several days, until, the friends becoming dissatisfied, he was asked if he did not wish another physician. He requested that I should be sent for, and daily saluted me by name, replied to questions coherently, giving no marked indications of delirium prior to his convalescence, but he afterward informed me that he had no recollection whatever of desiring my attendance, or of the fact that I visited him while the febrile career continued. The only explanation he could give of his electing my services was, that he had been accustomed to see me at church.

Of the few cases in which the delirium was *active*, it was remarkably violent in *two*. In both these cases, the efforts to get out of bed were almost incessant, requiring constant vigilance and considerable restraining force on the part of the attendants. These delirious effects continued up to a few hours of dissolution, both cases terminating fatally. In each of these cases, the type of the disease was *typhoid*.

Cases in which such activity of delirium is a prominent feature, may be considered and treated as cases of *encephalitis* by those who are not thoroughly versed in the principles of diagnosis. The early history of the disease, the state of the senses, the presence of abdominal and the symptoms so often associated with fever, etc., should, in most instances, furnish sufficient data for a correct discrimination.

Cases, however, do occur, in which, owing to defective information respecting the duration of the disease, and the previous history; to peculiarities in the cerebral symptoms, and the absence of many of the distinctive characters of fever, the diagnosis presents great difficulty. The following case will serve to illustrate this remark, and at the same time, furnish an instance of an unusual variety of mental aberration:

Frederick Brighton, German, aged 13, entered hospital September 9th, 1849. He was incompetent to give any account of his illness. From what was said by his sister, who brought him to the hospital, I gathered that he was attacked five days before his entrance, with diarrhœa and vomiting. His mother was buried on that day, having died with epidemic cholera. He had been delirious from the commencement. Had had no recurrence of diarrhœa or vomiting since his attack. It was not ascertained that he had had any medical attendance. He was actively delirious during the night after his admission; and in the morning succeeded in making his way to the verandah communicating with the ward, and endeavored to jump over the railing. At my visit he was somnolent, easily roused, but not to complete intelligence. Keeps his mouth in motion during sleep, as if sucking. (This symptom I have observed in another case.) Skin is cold and dry. Pulse 92. Tongue, which is readily and fully protruded, is moist and furred. Says he has no pain. No dejection since his entrance, nor has he passed urine.

Sept. 11. Somnolent. Respiration heavy, with loud whistling nasal rale, numbering ten. Actively delirious during night, endeavoring to get out of bed. Easily roused so as to opèn his eyes, but lies with a vacant stare, respiration continuing the same. Eyes not injected; pupil neither contracted nor dilated. Skin cool. Pulse 94, and somewhat thrilling. Flies creep over the face without exciting uneasiness. Commences to reply to questions, but fails to finish sentences. Protrudes his tongue, which is covered with a white coating; indentations of the teeth on the side of the tongue. No dejection. Abdomen not distended. Several dark petechial spots on abdomen. Resists examination of the abdomen, apparently from disinclination to be annoyed. Passed urine freely yesterday afternoon.

12th. Somnolent. Respiration 12. No dejection. Urinates in bed. Active delirium at night. Skin cool. Pulse 112. Protrudes his tongue readily, which is moist and coated. Resists examination of the abdomen. Partially roused without difficulty, opening his eyes in part only, with an absence of expression.

Treatment.—Tart. ant. and pot. gr. ss. hourly. Head to be shaved and vesicated.

13th. Symptoms not materially altered. Pupils appear dilated, and do not contract on opening the eye-lids. Grinds his teeth loudly. The antimony was repeated yesterday several times without effect. One grain was given to-day with no effect. On attempting to make him protrude his tongue, (which was ineffectual,) he uttered a loud and piercing shriek. No dejection.

Five drops of Croton oil were given on this day with no effect, and an enema containing two drachms of the spirits of turpentine.

14th. Died at one, A. M.

Autopsy — *Head.*—Moderate congestion of brain. No effusion into verticles. Some effusion into arachnoid sac, but quantity not ascertained, owing to escape of blood into this cavity. Consistence of brain normal.

No exudation of fibrin, or opacity of arachnoid. No abnormal consistency of cerebral substance discovered.

Abdomen.—Small intestines contained a thin, yellowish substance. Colon much distended with gas. Peyer's glands much hypertrophied without ulceration; and corresponding mesenteric bodies greatly enlarged. No lumbrici. Stomach presented several patches of ecchymosis; mucous tunic not softened, but detached with unusual facility. Spleen small and not softened. Liver presented nothing worthy of note.

To some of my readers it may appear censurable not to have recognized the disease in this case by the symptoms, but I am bound to confess that the diagnosis was not made prior to the autopsy.

In another case (which occurred in private practice,) the delirium was of an unusual and striking character. I saw the patient, in consultation, on the seventh day of the disease. He had previously manifested passive delirium at night, but had seemed rational in the day time. He was greatly prostrated at the time of my visit, and the general symptoms denoted that the case would soon terminate fatally. In the examination of the case, I proceeded to ask several questions, to which he made no reply, but regarded me with a fixed, vacant stare. Suddenly he shouted with a loud and violent tone, "G——d d——n you, I'll kill you!" This was uttered with a piercing voice, and an expression of countenance which combined the utmost imaginable degree of terror and fierceness, rendering the language more startling and terrific than can well be described. Shortly afterward, he became calm, and replied coherently to questions, but before I left the house, he had two other paroxysms, in which, from expressions uttered, he appeared to imagine he was struggling in a mortal conflict. Although his muscular strength was so much reduced that he was unable to rise from the bed, he shouted so loudly as to be heard over the whole house, and even at a distance from it. The case terminated fatally the following day.

This patient had always been regarded as a man of desperate character, capable of almost any act of violence, and was supposed to have committed heinous crimes. The peculiar kind of delirium seemed to correspond with the character of the individual; and the inquiry suggests itself, may not the delirium of fever be influenced, in some instances, to a greater or less extent, by the habits, occupation, and moral constitution of the patient?

What relations does delirium sustain to the *issue* of continued fever?

Delirium existed in all the fatal cases in my collection. In each of the fatal cases of *typhus*, it was (of course) passive in its character. In the fatal cases of the *typhoid* type, it was active in three cases, and passive in three cases. The three cases, however, in which the greatest degree of activity of the delirium was manifested, all proved fatal. In the fatal cases of *doubtful type*, the delirium in one was active, and in the other passive.

In so far as any deductions from so limited a number of observations are admissible, the conclusions are, that although an unfavorable prognosis is not to be predicated on the fact that delirium is present in a degree sufficient to be pronounced active, yet such cases are more likely to prove fatal, and that an unusual violence of delirium should lead us to anticipate a fatal result.

It remains to propose another inquiry, viz: upon what pathological condition or conditions, is delirium dependent; in other words, what is the pathological explanation of the delirium in Continued Fever? This, as well as other questions which, in the present state of knowledge, are open for discussion, and involve considerations more or less speculative, I shall only notice, in so far as facts can be made to bear upon it. With reference to the inquiry, whether this symptom may not be attributable to some one or more of the events appertaining to the febrile career, the method suggests itself of comparing the cases with each other to ascertain whether delirium is uniformly associated with any other particular symptom, or group of symptoms. But the symptom under consideration, being present in the great majority of cases, is apparently not influenced by the varied events which enter into the history of Continued Fever. It would seem that it must depend on something incident to that morbid condition which constitutes the essential nature of the disease. In all the cases in which delirium was not exhibited, the fever was of a mild grade, and it has been seen that it was not absent in a single case of those which proved fatal. Hence, it would follow, that the symptom depends somewhat on the severity of the disease; a conclusion which accords with the supposition that it proceeds directly from the proximate cause of the fever, and is not occasioned by any of the circumstances subordinate to the disease. In reasoning thus, it is assumed that the delirium of fever does not imply the existence of inflammation of any of the encephalic structures. That it does not, is rendered sufficiently plain by the symptoms, unless it be imagined that inflammation of these structures complicating fever, is deprived of all its diagnostic features except delirium, and this symptom we know does often occur, in other than fever cases, without involving inflammation. But positive observations have established that delirium may exist in fever, in a very active degree, without encephalic inflammation. This was the fact in two cases proving fatal, of those under analysis, in which active delirium was present. The autopsies revealed no evidences of inflammation within the cranium. In one of these cases the delirium was a more prominent and persistent symptom than in any other case that I have observed.*

Lesions of the mucous tunic of the stomach existed in both of the cases just referred to, consisting, in one case, in patches of ecchymosis, and, in the other case, in ulcerations. The observations of Louis, however, show that active delirium may exist in fever, irrespective of appreciable evidences of gastric disease.

There are several points of inquiry, relating to the subject of delirium, which have not been noticed. Among these are the duration of this symptom, and the period in the career of the disease when it first appears. The latter is a point involved in the discrimination of the two types of fever from each other. In the *typhoid* type it is stated that delirium occurs later than in *typhus*. On each of these points the data are too defective to be of much value. This is owing, in part, to the difficulty of fixing the date of the commencement of the disease in many cases, and, in part, to omitting, in the preliminary analysis, to note the time when the symptom first appeared, and the period of its continuance. To supply this omission, it would be necessary to go through with a re-perusal of all the cases. In examining the facts as arranged, with reference to the points mentioned, I find that in *four* cases of *typhus*, and *seven* cases of *typhoid*, delirium commenced early in the disease, i. e. during the first week; but it is not to be inferred that the same might not have been true of more or less of the cases in which evidence of the fact does not appear.

In a considerable number of cases, I find it stated that delirium was exhibited early in the disease, and diminished, or disappeared, for some days before the career of the fever was ended.

The manifestations of a morbid state of mind, irrespective of delirium, deserve some attention. I have copied all that is contained in the preliminary analysis relating to this subject, and will give the expressions made use of in the records to denote apparent mental conditions of the patients stating relative proportions of cases in which they respectively occurred, in general terms, without taking pains to obtain exact numerical results. *Dullness* of the intellectual operations was the trait most frequently noted in the cases of either type of fever. The patients replied to questions after more or less delay, seeming as if lost in deliberation, or as if the mind acted very slowly; when not addressed, they took little or no notice of persons and objects around them, seldom asking for any thing, expressing no wishes, appearing indifferent, and sometimes stolid. This was the general rule, but with some exceptions. In a few cases it is stated that the patients replied to questions promptly, and the apprehension had, apparently, lost but little of its normal quickness. In by far the greater proportion of cases, no emotions, either of pleasure or unhappiness, were exhibited. To this rule there were also exceptions. In one case, the patient was much affected at being ill at the hospital, away from his friends, and shed tears; in another case, great peevishness existed, the patient constantly complaining and whining ; in another case, the patient was disposed to complain, and was apprehensive as to the result of the disease. Impatience at being questioned, apparent reluctance to reply, and sullenness, were occasionally observed; so also irritability of temper, which was an exceptional trait. These remarks refer to the mental conditions after the fever became established, and during its career. They do not embrace the period of access. In two instances, one of the typhus, and the other of the typhoid type, there was a disposition to indulge in hilarity and playfulness, as if under moderate exhilaration from an opiate, or alcoholic stimulus, and in these cases the approach of convalescence was marked by diminished loquacity, and sedateness. There were strikingly exceptional instances. Usually, there was nothing like mirthfulness in the mental manifestations, and a *smile* was frequently noted as one of the harbingers of convalescence. In the case of a female patient, it is noted that she showed no reluctance to exposure of the abdomen, to look for the eruption, etc., until the time of convalescence, when the usual modesty of the sex was resumed.

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*The case referred to was reported for the Buffalo Medical Journal, Vol. IV., page 487, No. for January, 1849.

In conclusion, although the mental characters, aside from delirium, present diversities peculiar to individual cases, those belonging to the majority of cases, may be summed up as follows: sluggishness of all the mental powers; disinclination to exertion, either of the attention, or the will; absence of emotional sensibility, of anxiety as to the issue of the disease, etc. And, as a general remark, these traits were prominent, and early displayed, in proportion to the severity of the disease.

Sleep. More or less somnolency existed in a large proportion of the cases under analysis. By this I mean, that during the day time, and, in the hospital cases, especially at the time of the daily record, the patient was dozing, and exhibited a marked tendency to sleep. The degree of apparent drowsiness differed considerably in different cases. Generally, the sleep was not profound, nor complete, the patient lying in a state of semi-somnolency, with his eyes closed, readily roused on being addressed, but relapsing shortly into the same state. This condition is peculiar, and in a high degree characteristic of Continued Fever, being seldom observed in other affections, constituting the symptom known as *coma-vigil.*

Somnolency was not uniformly present, but it was much more frequent in the cases of *Typhus,* than in those of the *Typhoid* type. Out of *eleven* cases of *Typhus* in which the records contain information on this point, it was absent in but a single case; while out of *twenty-one* cases of *Typhoid,* it appears not to have been present in *nine.* Hence, it would seem that the peculiar morbid condition of the nervous system upon which this symptom depends, exists almost constantly in *Typhus,* while it only exists in a little more than one-half the cases of *Typhoid.*

Of the cases of *doubtful type,* it existed in *three,* and was absent in *two,* information on this point being deficient in *three.*

In order to ascertain whether any connection existed between this symptom and the issue of the disease, I will give the facts in the fatal cases.

In the *four* cases in *private practice,* which ended fatally, the conditions were respectively as follows: (*Typhoid.*)—In *one* case, vigilance throughout the whole career of the disease, with active delirium; sleep rather heavy, when it did occur; in *one* case, somnolency, the patient being easily roused, until toward the close of life, when it became more and more difficult, and finally impossible; in *one* case, the record is defective on this point. (*Typhus.*)—In the fatal case of this type, the patient was somnolent, but easily roused, up to the close of life.

In the *hospital* cases, as follows: (*Typhoid.*)—Vigilance throughout the disease in *one* case; somnolent toward the close of life, but easily roused, in *one* case; somnolent, and roused to only partial intelligence, in *one* case; part of the time somnolent, but easily roused, in *one* case. (*Typhus.*)—Somnolent, but easily roused, in *one* case, up to the close of life; somnolent at first, and easily roused, but became insensible, and died in that state, in *one* case. In the fatal case of *doubtful type,* somnolency did not exist.

It would seem that an unfavorable prognosis is in no wise to be based on the presence of this symptom, when it is considered that it does not uniformly exist in the cases which prove fatal; nor, when it does exist, is it uniformly in a marked degree; and when it is also considered that it exists in a large proportion of the cases which terminate in recovery.

It is worthy of remark, that the somnolency of Continued Fever does not often eventuate in insensibility, or coma. In but *two* cases of Typhus, and *one* case of *Typhoid*, do the histories show such a tendency. A practical consideration connected with this fact is, that the presence of this symptom need not deter us from prescribing anodyne remedies, or opiates, with the hope of substituting for the somnolency peculiar to fever, more complete and refreshing sleep. If the somnolent condition of a fever patient denoted a comatose tendency, the use of such remedies might be expected to favor such a tendency, and would, therefore, rationally, be injudicious. Experience, probably, will be found to sustain the conclusion, that, under these circumstances, these remedies may be administered with impunity, if not with advantage.

Coma. This term is here employed to designate a degree of stupor from which the patient could be but partially roused, or, with great difficulty roused, or, in some instances, a state of complete insensibility; and to these conditions occurring during the career of the fever prior to a few hours before death. As occurring shortly before death, they are more properly considered under the head of *mode of dying*, in which connection they will be referred to hereafter.

Considered under these limitations, *Coma* occurred in but a very small number of the cases analyzed, viz., in *two* cases of *Typhus*, and in *two* of *Typhoid*. In *three* of these cases, the disease proved fatal. In the case in which recovery took place, the comatose condition was accompanied by loud, stertorous respiration, constituting what may be termed *apoplectic coma*. As this event is of rare occurrence in fever, and one which cannot but be regarded as rendering the situation of the patient imminently critical, some farther account of this case may be interesting.

William McDonald, Irish, laborer, single, aet. 27, entered hospital June 6th, 1849.

The person who brought him to the hospital, stated that he had been ill ten days, and that he had arrived in this country about a month previous. The patient was incompetent to give a history of the symptoms; said he did not know how long he had been ill.

7th inst. *Present Symptoms.* He lies most of the time in a dozing state, but is easily roused. Eyes are not suffused. Aspect stupid. Face presents slight dingy redness. Manifests aberration of mind by incoherent replies to questions. Does not mutter. Appears not greatly prostrated.

Lies on his back, without changing his position, but moves his upper extremities frequently. Takes some notice of persons around him. Respirations 32. Sibilant *rale* through nares. *Has not been observed to cough.* Tongue furred, quite dry in the centre, moist at sides. Skin moist, and temperature somewhat increased. Pulse 120, well developed. Has had two dejections since his entrance on yesterday. Has urinated freely. Abdomen and chest thickly covered with a faint, dusky eruption, which seems either to have faded, or to be not fully developed. Abdomen soft; no tenderness on pressure. Gurgling in right iliac region. Has taken, since his entrance, Sulph. Morphiæ, gr. 1-8, once.

Treatment: S. Morphiæ, gr. 1-6; Tart. Ant. et Pot., gr. 1-4—every *six* hours. Weak milk porridge for diet.

8th. This patient remained yesterday without any notable variation in symptoms, until 8, P. M. It was then observed that he was more somnolent. Pulse 140. Respirations 36, and labored. At 10, P. M., the respirations became stertorous, but he was still roused without difficulty. The stertor continued at intervals through the night. I visited the patient at 6 o'clock this morning. The respiration was then loudly stertorous. Pulse 146, and well developed. Skin hot. He could be roused, with difficulty, so as to open his eyes, and to endeavor to protrude his tongue, but the latter effort was ineffectual. When he opened his eyes, the right upper lid dropped considerably. He retains sufficient muscular strength to raise himself into a sitting posture, and to change his position in bed. He passed urine last night, and had three dejections in bed, unconsciously. Has not vomited. I directed the hair to be cut close to the scalp, the ice-cap to be applied, the head elevated, sinapism to the neck; (it had already been applied to the feet and hands.) Tart. Ant. et Pot., gr. ss., to be repeated in twenty minutes.

1-4 before 8, A. M.; a manifest improvement in symptoms. The stertor is nearly gone. Lies with his eyes open, and takes some notice. Protrudes partially his tongue, on being requested. Pulse diminished in frequency, and, notably, in volume and force. Skin moist. No nausea. Antimony to be continued in doses of gr. 1-4, and omitted, if nausea occur. Ice to head continued, and warm applications to extremities.

11 A. M. Patient again stertorous, but can be partially roused. Antimony discontinued. Blister, 6x4, to nucha.

At 4, P. M., symptoms are not given, but the following prescription is recorded: Iodid. Potassii, grs. v, every two hours.

9th. Stertorous respiration continued during the night, at some times increased, and at some times diminished. Since 4, A. M., respiration has been free from stertor, and tranquil, except that the expiration is almost constantly attended by a groan. He is apparently conscious this morning, but does not speak. He moves his arms when requested, and as requested, but slowly, and with difficulty. He partially protrudes his tongue, which is covered with a thick moist coating. Pulse is 120. Had free dejections in bed during night. Has urinated freely. He lies with his eyes open, and appears to take notice. Pupils not dilated.

He has taken Iodid. Potassii, grs. v, every two hours, and ice has been almost constantly applied to the head.

Treatment for to-day as follows:—Iodide of Potassium, grs. v, every four hours. Proto-chlor. Hydrarg. gr. 1, hourly. Continue ice-cap. Essence of beef has been given frequently, and is to be continued.

10th. Passed a restless night, but without stertor. Had one dejection in bed. Takes notice of persons around him. Respiration now easy and tranquil. Protrudes his tongue, and essays to speak, but cannot enunciate distinctly. Tongue covered with a thin white coating. He appears to comprehend whatever is said to him.

Treatment: Sulph. Quiniæ, grs. ij, every four hours. Cont. essence of beef.

P. M. Has had three dejections. They occurred in bed, but he has cognizance of them, and endeavors to get out of bed at that time. No stertor. Lies awake; urinates freely. Pulse (figures not legible) well developed.

Omit Quinia, and give, *per enema*, Tinct. opii, ʒj. Apply blisters behind ears. Sptts ether nitrosus, ʒj, every four hours. Omit essence of beef.

11th. Rested well part of the night, and part of the time was restless. This morning, aspect more intelligent, appears to comprehend all that is said to him, but cannot control the muscles sufficiently to enunciate distinctly. Respirations 40; skin hot. Pulse 120, well developed. Tongue dry at tip. One dejection this morning, pretty large. Got up to defecate. Urinates freely. Blisters have vesicated well. Ice is still applied to the head. Has some carphologia.

Treatment: Sup. Tart. Pot., ℥ss.; Nit. Pot., ʒij.; Aquæ, Oj. To be drank during the day.

12th. Restless early part of night, but after taking Tart. Ant. and Pot., gr. ¼, became more quiet. This morning quite as comfortable as yesterday. He is now sitting in defecating chair. Tongue cleaning. Manifests more intelligence, and can enunciate better than yesterday. Four dejections since yesterday morning. Secretion of urine abundant.

Treatment: P. Doveri, grs. iij.; Tart. Ant. and Pot., gr. $\frac{1}{8}$—every four hours. Omit Sol. Sup. Tart. and Nit. Pot.

13th. Aspect better. Tongue improving. One dejection. Skin less hot. Pulse 108. Respirations tranquil, and 32.

Treatment: Tart. Ant. and Pot., gr. $\frac{1}{8}$, every four hours.

14th. Had an uncomfortable night. Respirations accelerated and labored. *Cough troublesome.* Aspect as good as yesterday. Seems bright; understands what is said, and raises himself briskly in bed. Respirations 30; expiration attended by a sibilant nasal rale. Pulse 120, well developed. No dejection. Urinates freely. Tongue moist and cleaning. Continues to enunciate imperfectly.

Cont. Treatment.

15th. Good night. Aspect improved. Pulse 108, less developed. Skin perspiring. Tongue cleaning. Respirations 36, and not labored. Enunciates better. No dejection for 48 hours. *Cough has become a troublesome symptom. Expectorates considerable puruloid looking matter.*

16th. Restless night. Respirations short, frequent, and labored. Has expectorated considerable muco-purulent matter. Skin warm and moist. Pulse 112. Had large dejection this morning, moulded, and natural in appearance. Respirations 24, and now easy.

Treatment: Carb. Ammoniæ, and Tart. Ant. and Pot., if respirations become accelerated or labored.

17th. Aspect better. Comfortable night. Skin cool. Pulse 100. Copious muco-purulent expectoration continues. Respirations easy.

18th. Symptoms continue the same. Distinct relative dullness on percussion over the left side, posteriorly, at the inferior angle of the scapula, with a loud mucous rale; on right side, posteriorly, sonorous rale. He continued to improve, but exhibited some delirium until the 25th, when it is noted that the pulse were 140, temperature of surface increased, copious purulent expectoration continuing, and respirations 32.

27th. Aspect and symptoms improved, but still some delirium at night; copious purulent expectoration. Pulse 108. Skin cool, and perspiring. Chest dull on percussion on the left side, laterally and posteriorly, and anteriorly at inferior third. Respiration over dull portions, tubular. No rales perceived.

On the 29th, he was up and dressed.

July 1st, he was walking about, and from this date, he convalesced rapidly.

Remarks. The history of this case is given in detail, on account of the occurrence of coma, with apoplectic stertor, and the recurrence of this condition, in a somewhat paroxysmal manner. The investigation of the case, I regret to say, as is now apparent, was incomplete, at the time these symptoms became developed. The chest should have been examined at that time, for, although no cough was noticed anterior to, or or in connection with the coma, it is not improbable that physical exploration would then have revealed the existence of pneumonitis, the existence of which, subsequently, was apparent. The occurrence of a muco-purulent expectoration, which became at once a prominent symptom, together with cough, is presumptive evidence that pneumonic inflammation had been present for some time, for it would not be expected that a purulent formation would have accompanied the inflammatory attack from its very onset. Assuming that pneumonitis existed, and its characteristic symptoms masked by those appertaining to the brain, it becomes an interesting question whether the cerebral affection may not have been, in a measure, dependent upon the pneumonic inflammation. It would be improper to discuss this question, inasmuch as the data must be assumed.

In this pathological aspect, the case is one of those which enforces the importance of physical exploration of the chest, under circumstances in which pulmonary disease may be present, with an absence of rational symptoms directing inquiry in that direction, the attention, as in this instance, being absorbed with prominent cerebral symptoms, which, as is well known, occasionally mask affections of other organs.

Senses and Sensibility. This division will embrace several sub-divisions. Under the head of *Sensibility*, the occurrence of *pain* in different parts of the body will form the chief topic of inquiry. The morbid conditions of the different senses, but, more particularly, the *eye* and *ear*, will next claim attention.

The part of the body most frequently the seat of painful sensations in Continued Fever, is the *head*. I will examine the cases, therefore, first, with respect to this symptom.

Cephalalgia. Of the cases in *private practice*, this symptom is not mentioned in *seven*, and was present in all the remainder, viz., *seven*.

Three of the cases in the records of which this symptom is *not* mentioned, came under observation, respectively, on the fifth, sixth and seventh day after the fever was established. In the remaining *four* cases, the fever was observed from its commencement.

In the *seven* cases in which the symptom was present, it was not uniform in degree. It existed in a marked degree in but *two* cases—in the other cases being more or less prominent. It continued from *two* to *four* days, except in *one* case, in which it continued *seven* or *eight* days. In the latter case, it was moderate in degree, and the fever was of a very mild grade of intensity.

In the single case of *Typhus* in this group of cases, which was observed from its commencement, the presence of this symptom is not stated.

In *three* of the *fatal* cases in this group, nothing is mentioned of the presence of this symptom. In the remaining *fatal* case, it existed at the commencement of the disease.

Hospital Cases. Of the cases of the *Typhoid* type, cephalalgia is noted as present in *four* only. In *thirteen* cases, nothing is stated relative to this symptom.

In *ten* of these *thirteen* cases, the febrile career had continued for a period not less than *five days*, before coming under observation. In *one* of these cases, the fever had continued but one day before observed; and in *one* case, it was observed from the commencement, i. e., so soon as the patient was compelled to take to his bed. In *two* of these cases, the duration of the disease before coming under observation could not be ascertained.

In none of the *three fatal cases*, in this group, is this symptom stated to have been present. *One* of these cases entered on the *second* day—the *two* others, several days after the commencement of the febrile career.

In none of the cases of this group in which the symptom was present, did it continue beyond the fourth day.

Of the cases of *Typhus*, cephalalgia is noted as present in but *two*. In *one* of these cases, it existed for the first day only, the case being observed from the time the patient took to his bed. In the other case, it lasted *two* days, the previous duration of the febrile career not being ascertained. Neither of these cases proved fatal.

In *eight* cases of this group, nothing is noted relative to the presence or absence of this symptom. In *two* cases, it is noted that no pain existed. In *two* of the cases in which nothing is stated relative to the symptom, the fever was observed from the commencement of the career.

Of the cases of *doubtful type*, cephalalgia existed at the early part of the disease, in *two*; of the remaining *six* cases, in *two* it is stated that this symptom was not present, and in *four*, nothing is said relative to it. In *one* of these *six* cases, the fever was observed from the commencement of its career; and in *one*, the patient entered on the second day. In the other *four* cases, the duration of the fever prior to observation was, in one case, *three* days; in one, *five* days; in one, *eight* days; and in one, *six* days. In the single *fatal* case in this group, nothing is stated relative to cephalalgia, the case coming under observation on the *eighth* day.

These results show, *First*—that cephalalgia, in Continued Fever, is not a symptom incident to the disease after the first few days of its continuance. *Second*—that this symptom is present during the first four days, in a certain proportion of cases, but not invariably. The numerical proportion of cases in which it is present, the cases under examination do not afford the means of estimating, so many of them coming under observation after the period in the disease had passed to which it is limited, and the details of the previous history often being imperfectly obtained. *Third*—it is not a symptom which appears to have any connection with the issue of the disease. *Fourth*—in degree, the symptom is variable, occasionally being intense, but, in the majority of cases, not severe or prominent.

It will, of course, be understood that this symptom is now under consideration as it is presented during the febrile career, *after* the access of the disease. It is much more uniformly present during the access than subsequently.*

In general, it is obvious that this symptom possesses small importance. either in a pathological or diagnostic point of view, in Continued Fever.

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* I wish to state that, in conducting the present analytical examinations, my rule is, to obtain results, and draw deductions, before referring to the works of Louis, and others, in order to ascertain the correspondence or disparity of these results and deductions, with those therein contained. When I express general conclusions with respect to Continued Fever, I always mean those only which the data before me authorize me to draw. If these conclusions differ from those arrived at by other observers, and by means of an analysis of a larger number of cases, then it becomes a question how is the difference to be explained. This question, however, it does not enter into the design of this report to discuss. Nor, as will be observed, do I make it a point to state always how my results and conclusions do compare with those previously obtained by others. I have done so, thus far, in some instances, but not uniformly. My reason for not devoting much space to these topics is, that to give them adequate consideration would swell, too much, the size of the present report. Besides, the report purports to consist only of observations based on an examination of cases that have passed under my own observation. I am led to introduce this note in the present connection, by having noticed, *after* this Section was written, that the facts developed by the researches of Louis, respecting *Cephalalgia*, differ considerably from those I have presented. In his collection of cases, this symptom was found to exist in a much larger proportion of cases, and to have a longer duration. Why this disparity exists, I am not prepared fully to say, but perhaps it may be explained by supposing that in making inquiries relative to this symptom, Louis embraced the period of the *access* of the disease, which, in the plan I have pursued, was excluded. This would also account for the longer continuance of the symptom in the cases observed by him.

It is highly interesting, after having worked out results, to see how they compare with those which have already become the property of science; and one advantage of repeated analytical investigations of the same disease, consists in this comparison, with a view to investigate the causes of differences which may be found to exist.

When unusually prominent, however, and intense, it may occasion perplexity in the mind of the practitioner. This happened in one of the cases occurring in private practice. The pain in the head, in this case, was so severe for the first three days, being accompanied by increased susceptibility to light and sounds, together with considerable general nervous excitability, that I was not without apprehension lest the affection might be encephalitis. The practical importance of not confounding this affection with fever, is too obvious to require remark, and has been already alluded to under the head of *Delirium*. Fortunately, instances are extremely rare in which there exists much ground for hesitation in the discrimination.

The disappearance of Cephalalgia, even when it had been severe, after the lapse of a few days, is an interesting fact in the history of the disease. I would remark that, in observing cases, it appears often as if this fact were owing, not so much to the cessation of the morbid condition upon which the cephalalgia depends, as on the induction of a mental state, rendering the patient unconscious of suffering from the persistence of that condition.

The cases in which, after the career of the fever was established, *pain* in any other part of the body than the head, was experienced, are very few. The histories of the *private cases* contain no account of any other than cephalalgic pain. It is possible that various painful sensations may have existed, but if any had been present, except in a very slight degree, it is probable they would have been recorded.

In the *hospital cases*—(*Typhoid*)—pain in the limbs was the subject of complaint, in *one* case; in back, knees, and other joints, in *one* case; and pain "all over," in *one* case. *Typhus*—pain in the lower extremities, was complained of in *one* case. *Doubtful type*—pain in upper extremities, in *one* case; in the chest and legs, in *one* case; in the back and eft hypochondrium, in *one* case; and in the back and limbs, in *one* case.

It may be remarked, that slight, unimportant uneasy sensations, which might have been mentioned, would perhaps not be recorded; so that in the instances above enumerated, the pains were probably somewhat prominent as symptoms.

In a very large proportion of the cases, especially after the first three or four days, the patients made no complaint—frequently declaring they were comfortable, and sometimes that they felt very well. The latter reply was most apt to be returned by those who were the most seriously ill. I have sometimes noticed that a patient who replies to a general question as to his feelings, that he is pretty comfortable, on being inquired of more particularly, if he has not some pain somewhere, will apparently deliberate for a time, and afterward refer to some part as the seat of painful sensations. Oftener, after saying he is comfortable, if he be asked whether he has not pain in the head, abdomen, back, etc., he answers in the affirmative. These observations show that the absence of suffering is due, not alone to the absence of conditions calculated to occasion distress, but to the blunted perceptions incident to the disease.

A blunted perception of morbid sensations was evidenced by various other circumstances; such as indisposition to changes of position, even when the position was such as would ordinarily produce uneasiness; creeping of flies over the face, apparently unnoticed, etc. Circumstances that will be noticed under other Sections, will serve to illustrate the same condition. So that *diminished general sensibility* may be said to belong to the symptomatology of Continued Fever. And it is probably true that, other things being equal, this symptom is, in some measure, proportioned in degree to the gravity of the febrile disease.

I pass now to the *Senses*. And first, the *Eye*.

Eye. The observations respecting the eye, relate almost exclusively to the presence or absence of vascular congestion of the conjunctiva. In *two* cases only was diminished mobility of the retina noted. The tone of expression given to the countenance by the eye, has been already considered, under the head of the *general aspect*. Yellowness of the conjunctiva existed in *one* case. In a few cases it is stated, that, while the patient slept or dosed, the eye-ball was partially uncovered; but pains were not taken to record observations with respect to this point. Increased susceptibility to light is not mentioned, except in a single instance—the instance already referred to, in which cephalalgia existed in a severe degree, occasioning the suspicion of encephalitis. As respects *vascular congestion*, of the cases in *private practice*, suffusion, in a marked degree, is noted in *one* case; and in *one* case, the conjunctiva was moderately injected. Both of these were cases of the *Typhoid* type, and in neither did the disease prove fatal. In all the remaining cases, including the case of *Typhus* and the case of *doubtful type*, nothing is stated relative to the appearance of the eye. It is not stated that the eye was suffused or injected, in the instance in which there existed increased susceptibility to light.

Of the *hospital cases—Typhoid*—the eye was suffused in *four* cases. In three of these cases, the degree of suffusion is denoted by qualifying adjectives, as follow:—*slightly*, in *one; moderately*, in *one;* and *somewhat*, in *one*. In *three* cases, it is noted that the eye was *not* suffused; and nothing is recorded in *eleven* cases. It is fair to conclude, that in nearly, if not quite all the cases in the record of which nothing is said on the subject, no congestion existed. Of the four *fatal cases* of this group, in *three* nothing is stated relative to the congested appearance of the eye; and in the remaining case, it was suffused.

Of the cases of *Typhus*, the eye was suffused, or injected, in *six* cases; and in no instance were qualifying adjectives used to denote a light degree of congestion. In *two* cases, nothing is stated relative to the appearance of the eye; and it was *not* suffused, nor injected, in *four* cases. Conjunctival redness was present in the *two* fatal cases in this group.

Of the cases of *doubtful type*, nothing is stated in *five* cases; it is stated that no suffusion existed in *two* cases; slight injection existed in *one* case.

In the use of the terms *suffusion* and *injection*, the former was applied to a watery appearance, with some redness, and the latter to a greater degree of congestion, in which the vascularity was more marked.

A suffused, or injected condition of the eye, thus, is present in a certain proportion of cases of either type of Continued Fever; but the numerical ratio of the cases in which it exists, is not deducible from this analysis; the fact of the absence of this symptom not being noted in a considerable number of cases, although the presumption is, that it was not present in the cases, in the records of which it is not mentioned. The above enumerations, however, show, that it is oftener met with in cases of the *Typhus*, than in the *Typhoid* type; and that it is less in degree in the latter than in the former. The symptom, when present in a marked degree, therefore, has some diagnostic value.

The inquiry arises, whether this symptom be not dependent on the general capillary congestion, which, as has been seen in a preceding Section, is exhibited, in a large proportion of cases, on the face and surface of the body generally. It would be a rational supposition that this was the case; but on comparison of cases, it appears that the two symptoms are by no means uniformly associated. Not only capillary congestion of the skin does not exist in all cases of a congestive appearance of the conjunctiva, but the latter may be absent in cases in which the former is present. Of the *two* cases in *private practice* in which the conjunctiva was reddened, nothing is stated respecting the skin in *one* case, and in the *other* case, congestion of the face co-existed. Of the *Typhoid hospital* cases, in which conjunctival congestion existed, nothing is stated with respect to the skin, in *one* case; capillary congestion of the skin co-existed in *two* cases, and it did not co-exist in *one* case. Of the cases in which conjunctival congestion is recorded absent, capillary congestion of the skin existed in *three* cases.

Of the *Typhus hospital* cases in which conjunctival congestion existed, nothing is stated respecting capillary congestion of the skin, in *one* case; capillary congestion of the skin co-existed in *five* cases, and was not recorded absent in a single case. Of the cases in which conjunctival congestion was recorded absent, capillary congestion of the skin was present in *four*, i. e., in all the cases.

Hence, it appears, as already stated, that the two symptoms are not constantly associated. This, however, does not prove that they may not both be effects of the same pathological condition—circumstances, which we are not able to appreciate, occasioning the manifestation of either, exclusive of the other.

Hearing. Bluntness of the perception of impressions received by the sense of hearing, as a general remark, obtains in Continued Fever after the first few days of the febrile career, if not from the very commencement. This rule, in so far as the present collection of cases is concerned, would seem to be without an exception. In no case is it noted that, after the third day, there existed a morbid susceptibility to sounds. The only instance in which this is stated to have been the case at any portion of the febrile career, was the case already alluded to, in which unusual cephalalgia and increased sensibility to light existed. Merely dullness of hearing, corresponding with dullness as respects other senses, may be considered as belonging in the category with *diminished general sensibility*, and is probably due to a mental condition.

But in a considerable proportion of cases, the sense of hearing is affected specially, and in a degree disproportionate to the state of the mental perceptions.

Deafness, more or less, is noted in the records of *six* of the *fourteen* cases in *private practice*. Of the *hospital cases*, this symptom is stated to have been present in *five* of the *eighteen* cases constituting the *Typhoid* group; in *five* of the *twelve* cases of *Typhus;* and in *two* of the *eight* cases of *doubtful type*. Generally, in the cases in which it is not stated that the symptom was present, nothing is said on the subject. It is fair to presume that in all, or nearly all of the cases in which the symptom was discoverable, or sufficiently marked to be observed, it was embraced in the records. But it was not always easy to determine as to its existence. In cases of marked somnolency, or stolidity, and when persistent active delirium existed, it was sometimes difficult to appreciate the existence of deafness.

Hence, I do not suppose that the above enumerations possess much value in endeavoring to ascertain the precise ratio of frequency in the occurrence of this symptom. But here, as in many other instances, arithmetical accuracy is not of great practical importance. It is sufficient to form a rough estimation of the probabilities of its occurrence.

Nothing appears, on an examination of the cases, to denote a connection between this symptom and other events of the febrile career. It was present in cases of a mild as well as severe grade of intensity. It was observed in cases of both types, but oftener in Typhus. It was associated sometimes with somnolency and delirium, but was also noted in cases in which the latter symptoms were slight or absent. Of the hospital cases, of both types, which proved fatal, it was noted as present in *two*. In *one* case it was noted absent; and in the histories of the *three* other cases, nothing is said relative to its presence or absence.

It was observed that, when deafness existed, it frequently, if not generally, persisted through the febrile career; and, in some instances, continued for some time after convalescence was established.

It was by no means uniform in degree; sometimes occasioning only some bluntness of hearing—but in some cases rendering it necessary to speak quite loudly in order to be heard.

In some cases patients complained of the difficulty they experienced in hearing, and in other cases it did not appear to excite their notice.

No other facts relating to the sense of hearing were recorded, except that in *two* instances, in connection with deafness, the patients complained of a noise or buzzing in the ears.

As regards the senses of *smell* and *taste*, pains were not taken to record, or to make observations.

Involuntary Muscular Contractions. Involuntary muscular contractions were noted in so small a number of instances, that it will not be tedious to notice them and their peculiarities, individually.

Of the cases in *private practice*, involuntary muscular contractions are stated to have existed in *three*. In *one* of these, they consisted in *subsultus tendinum*, and visible twitching of the hands during sleep. The patient, in this instance, recovered. The disease, in its general features, did not present great gravity.

In *one* of the other instances, there existed marked tremulousness of the hands and the tongue, at the commencement of the disease. So prominent was this symptom that, for the first day, the affection was supposed to be delirium tremens—the character and the history of the patient being unknown. This case ended fatally on the *fourth* day, and was of the *Typhus* type.

In the *remaining* case, there existed tremulousness of the hands and muscles of the face, when the patient was first seen on the *fifth* day. The case ended fatally on the *ninth* day. This case was of the *Typhoid* type.

Of the *hospital cases—Typhoid*—in *one* case, in which recovery took place, some tremulousness of the hands was observed, on one day. The case was one of severity. In another case, there existed *subsultus* and marked tremulousness of the hands, together with inability, on one occasion, to protrude the tongue. This case ended fatally on the *tenth* day.

Of the cases of *Typhus, subsultus* was noted in but *one* case. This was a case of considerable, but not very great severity, ending in convalescence on the seventeenth day after entrance—the patient entering twelve days after illness commenced.

In the two fatal cases of this type, in *one* the power of articulation was lost toward the close of life—the patient not being unconscious. In the other case, much difficulty was experienced in protruding the tongue—repeated efforts being required. Coma became developed in the latter case.

Of the cases of *doubtful type*, tremulousness of the muscles, toward the close of the disease, was noted in the case which proved fatal. Nothing under this head appears in the records of the other cases in this group.

The instances in which this symptom is recorded as present, are fewer than I should have estimated before the analysis was made. A symptom so obvious and important would not be likely to be overlooked or omitted in the history. It is, however, possible that it may have been present, in the form of *subsultus*, and in a minor degree, in some cases in which it was not manifested at the diurnal examinations and records, and, hence, have been omitted.

It will be observed that, in most of the cases in which involuntary muscular contractions were noted, the disease ended fatally. In view of this fact, taking also into consideration the fact that the symptom is one of rare occurrence, its presence is of bad omen, as respects the prognosis.

Carphologia. This symptom properly belongs among the aberrations of the sense of vision, consisting in voluntary motions directed toward illusory objects in the air, or on the bed-clothes. It was noted in *three* cases. In one case, of the *Typhus* type, it was observed only on one day. The disease in this instance was severe, but did not prove fatal.

In *one* case, the type was *Typhoid*, and the disease ended fatally. The case was characterized by vigilance, and very active delirium, up to a few hours before death. It was a prominent symptom in this case, in the latter stage of the disease. In the remaining case, the type of the fever is classed as *doubtful*. The patient entered the hospital on the third day after the attack; but the fever had supervened on an illness of three weeks' duration, (the character of which was not ascertained,) from which he had but recently recovered sufficiently to return to labor. Convalescence was pronounced in this case on the sixth day after his entrance.

Pulling up of the bed-clothes, I do not find noted except in one case. It may possibly have existed, and, not being apparent at the time of the daily examination, escaped being recorded. In the case in which it was present, it was associated with Carphologia. This case was the last of the three cases mentioned above.

Prostration. By *prostration*, I mean exhaustion, or reduction of the force inherent in the voluntary muscular system. Under this head I shall make a few general remarks, based on an examination of the cases, without any enumerations. The latter cannot, in this instance, be made of much avail, inasmuch as we have no means of measuring, with precision, the deterioration of voluntary muscular power. We can only form estimates which are but rough approximations to correctness, and these must be expressed by terms somewhat indefinite. For examples, we may say, that the prostration is moderate, slight, considerable, great, very great, etc. These expressions, obviously, have relative significations, which, taken in the connection in which they are used, may be sufficiently explicit for practical purposes, but they lack that definiteness which is desirable in data for for numerical results.

In a certain sense, fever invariably induces a considerable degree of muscular prostration. The event selected to indicate the commencement of the febrile career, is evidence of this fact. Patients are compelled to take to the bed. They are unable to maintain the erect posture, or to continue, except for a short time, efforts of locomotion. In saying of a particular fever patient, he is greatly prostrated—it is not to be understood that the powers of a healthy, vigorous man are taken as the standard of comparison; but that his muscular strength is reduced considerably below an average of the degree of diminution incident to the febrile state. Judged by this rule, in the majority of the cases which form the subjects of the present analysis, the prostration was not great. The patients generally were able to raise themselves in bed, to change their position by their own efforts, etc. The loss of muscular power was not so great as in many protracted chronic diseases in which the patient is obliged to keep the bed.

In a considerable proportion of cases, patients were able, with the assistance of an attendant, to get out of bed, in order to pass their evacuations, for change of bed-linen, etc. Sometimes they were able to remain sitting for some time; and, when this was not the case, it frequently appeared to be owing rather to *giddiness*, than to a deficiency of muscular force.

The loss of muscular power was often more apparent than real. There was ability to exert considerable voluntary effort, but a mental indisposition thereto. The nervous, rather than muscular force, was at fault. The strength was more oppressed than reduced. Owing to mental dullness, it was difficult, sometimes, to rouse the patient to a trial of voluntary effort; and in cases in which marked somnolency, or a tendency to coma existed, it was not easy, on this account, to form an estimate of the amount of muscular ability retained by the patient.

In cases in which the fever was of a mild grade of intensity, there existed moderate or even slight prostration, patients being able to assist themselves with very little aid from others. Extreme prostration always occurred in connection with other symptoms denoting unusual gravity of disease. The converse of this, however, was not true. In some of the cases attended with most danger, and some of those ending fatally, the muscular strength was retained in a surprising degree. In two fatal cases of the *Typhoid* type, characterized by active, persistent delirium, the muscular efforts were almost constant, and quite strong up to a few hours before death. One of these cases terminated on the ninth day, and the other on the third day after coming under observation. The mode of dying, in each, was by *asthenia*, or, perhaps, more properly, *necræmia*—the system of involuntary muscles exhibiting reduction of force to a degree incompatible with life—the voluntary muscles remaining active. This is a curious fact.

It follows from the above observations, that while an unusual degree of prostration is an unfavorable sign in Continued Fever, the preservation of considerable muscular force is not to be considered as, correlatively, a favorable sign.

In several of the cases, I have observed a fact which has an important practical bearing upon the treatment of fever, viz., an improvement in strength during the febrile career. In the histories of the cases, it is occasionally noted that the prostration, at first apparent, diminished while the disease was yet in progress. In these cases, the patients had not received proper care in the way of nursing, or medical attendance; and in some instances, according to the views of the writer, the management had been not only defective, but injudicious. As respects the average degree of muscular force presented in a series of fever cases, much, I am persuaded, will depend on the therapeutical system pursued. This, however, is a topic which will more appropriately come up under the head of the Treatment of Continued Fever.

On consulting the Treatise on Fever by Louis, the reader will find that the results under the head of *Strength*, appear to be at variance with the foregoing. If I may be permitted a criticism upon the observations of that distinguished observer, under this head, I should say, that he does not seem to distinguish between the absolute loss of muscular power and the reluctance to exert it. If the reader will carefully peruse his remarks on this topic, I think he will discover sufficient evidence of the correctness of this criticism.

Louis gives an account of some cases in which the muscular strength was retained sufficiently for the patient to keep about several days after the fever was established. Agreeably to the rule I have adopted, these patients would not be considered to be laboring under established fever prior to the time they took to the bed. As I have before stated, this rule is somewhat arbitrary, and does not mark the commencement of the disease, with exactness, in all cases. Nevertheless, it seems to me to answer better as a point of departure for the origin of the disease, than any other event, or collection of events, that can be selected.

SECTION FIFTH.

Symptoms referable to the Digestive System. Appetite. Thirst. Tongue. Sordes. Parotitis. Nausea, and Vomiting. Alvine Dejections. Tympanites. Tenderness of Abdomen. Gurgling.

Morbid conditions of the digestive system are involved in important questions relating to the diagnosis, pathology and therapeutics of Continued Fever. That portion of the symptomatology of the disease, therefore, which is embraced in this Section, opens a field of inquiry from which interesting, if not useful, results may be hoped for. I will take up the several sub-divisions of the Section in the order in which they are enumerated in the caption.

Appetite. The importance of noting negative as well as positive facts, here, as in several other instances, being overlooked in recording the histories of the cases under analysis, the data are too defective for any statistical results. In a large number of the cases nothing is stated relative to the appetite. It cannot be doubted, however, that *anorexia* exists in the vast majority of cases of Continued Fever; and it is to be presumed, that this symptom was present in most of the cases in which the records are silent on the subject.

In a few cases it is noted, that appetite existed—the patients declaring that they took the food given to them with some relish. In connection with this fact should be stated, what will be noticed hereafter under the head of *Treatment*, that the majority of the patients were allowed milk porridge and essence of beef, for diet, during the greater part of the febrile career. In *two hospital* cases, of the *Typhoid* type, the patients said that the diet was agreeable; in *one* case of *Typhus*, the same is noted; and in another case of the same type, it is stated that the patient had some appetite. In all the other cases, both in private and hospital practice, either anorexia existed, or nothing appears in the histories relative to this subject. The reader may have some curiosity to know if there were any characters distinguishing the *three* cases in which food was relished, and the single case in which it was desired. Of the two *Typhoid* cases, *one* proved fatal. The patient, in this case, was passively delirious during the early part of the disease, but the mind subsequently became clear. He was greatly prostrated. Evacuations were passed in bed, not unconsciously, but from inability to restrain them. Death occurred, twenty-six days after the attack, by exhaustion, (*necræmia.*) In this case, anorexia existed part of the time. In the other case, the disease was of a mild grade; the patient being convalescent eight days after entering hospital, and quite well on the nineteenth day. In the two *Typhus* cases, both patients recovered. The disease, in both, was of medium severity. In both, pulmonary symptoms were prominent. In one, it is stated that food was relished through the febrile career; in the other, appetite was stated to exist only on one day—the second day after admission. No circumstances thus appear which can afford any explanation of the deviation from the general rule, as respects the appetite, in these four cases.

I would remark, that I do not feel confident that the four cases just mentioned, were the only instances in which food was relished, not being satisfied that proper pains were taken to make inquiries and notes relative to this point, during the examination of patients.

Thirst. Of this symptom, as of that just noticed, owing to want of care to record negative facts, I cannot submit any statistics as respects the frequency of its occurrence, its duration, etc. In a large proportion of the cases, the records contain no reference to thirst. I will not presume that it did not exist in any of these cases, but I am confident it was not a prominent symptom in any of them during the time they were under observation, after the fever became established. In *three* of the cases in *private* practice; in *three* of the *hospital* cases of *Typhoid*, in *two* of *Typhus*, and in *one* of *doubtful* type, *thirst* is mentioned as a symptom continuing, more or less, through the febrile career. In all these cases, save two, the thirst was moderate in degree. It is also worthy of remark, that in all, save the two last referred to, the disease was of a mild grade of severity; and in *four* of the cases, very mild. In the *two* cases in which thirst was more than moderate, the disease proved fatal. One of these cases was among the number in which food was relished; and in this case, the thirst was considerable. In another instance, thirst was associated with the relish for food.

In addition to the *nine* cases in which, as just stated, *thirst* existed through the career of the fever, it is noted to have been present in the early part of the disease in several instances, viz., in *four* cases of Typhoid, *three* of *Typhus*, and two of *doubtful type*. It will be recollected that in a large proportion of the *hospital* cases, the patients did not come under observation at the earliest stage of the disease. It is altogether probable that, in several of these cases, this symptom had existed and ceased prior to the period when the records commenced.

The cessation of the symptom is readily explained by attributing it to the bluntness of perception which usually characterizes the disease after the first few days. The morbid conditions which had occasioned the sensation of thirst, probably continue; but the faculty of perceiving these conditions, or of suffering in consequence of them, is no longer acute. This idea is confirmed by a fact above noted, viz., that in most of the cases in which thirst continues through the career, the disease is of a mild grade—less obtuseness of sensibility belongs to its progress. It is also confirmed by another fact which I have very generally observed, but which is not noted in the histories, viz., that although the sensation of thirst may not create sufficient uneasiness to lead the patient to ask for drink, nevertheless, when it is presented, he almost always takes it with readiness, and frequently with avidity, showing the existence of the symptom, but, as it were, latent, owing to the mental apathy peculiar to this disease.

Tongue. The morbid appearances of the *tongue* are observed with attention in all diseases; but in few, if any, are they generally regarded as possessing greater interest and importance than in febrile affections. Some practitioners attach a significancy and value to particular conditions of this organ, which close investigation probably will not warrant. Certain appearances are supposed to stand in a fixed relation to certain pathological conditions of other parts, and of the system at large; or, they are thought to foreshadow the issue of the disease, or to indicate particular methods of treatment. These notions, which it might be presumed involve both truth and error, are partly empirical and partly speculative—that is to say, in some instances, theoretical views have doubtless had more or less to do in originating them; but it is also frequently claimed that they are corroborated by experience. In either case, the analytical investigation of a large number of recorded observations, is the proper tribunal for adjudication. By ascertaining precisely the position which every appearance occupies in the natural history of the disease, its importance as a symptom or sign is determined.

There are two points of view in which the appearances of the tongue in Continued Fever are to be studied. *First*, the different appearances which are found in cases of the disease, considered collectively, their relative frequency of occurrence, their relations with other symptoms, etc. *Second*, the different appearances which are successively presented during the progress of the disease, in individual cases. In both points of view, the appearances are various.

Of the *fifty-two* cases which are the subjects of the present analysis, the histories contain an account of the appearances which the tongue presented during the febrile career, in all but *two* cases. In not one of these cases did the tongue retain a perfectly normal aspect through the career of the disease. The nearest approximation to this was in one of the cases in private practice—(*Typhoid*)—in which the disease was of a very mild grade, the patient being convalescent on the *fifth* day. In this case the tongue remained perfectly natural in appearance until a couple of days before convalescence, when the superior surface became slightly opaque, hardly enough so to be called furred, and not more than is habitually observed in many persons who call themselves well. In all the other cases morbid appearances, more or less considerable, were presented. The different appearances presented in the different cases, involve varying degrees of dryness of the surface of the organ, together with resistance to the touch; coatings varying in thickness; varieties in *color;* smoothness, fissures, etc.; aberrations of muscular contractility, or an inability to protrude it, facility of performing this act, etc. I will take up the more important of these appearances separately.

Dryness of the Surface. More or less dryness of the tongue was present in a large proportion of the cases, viz., in *six* of the *fourteen* cases in pri-

vate practice; in *fifteen* of the *eighteen hospital* cases of *Typhoid*, *ten* of the *twelve* cases of *Typhus*, and *five* of the *eight* cases of *doubtful* type; making, in all, *thirty-six* of the *fifty* cases in which the appearances of the tongue were noted.

The dryness differed in degree in the different cases; in some being slight, in other cases extreme, and in others, moderate. In several cases, the dryness was accompanied with *hardness*, that is, the surface presented an appearance as if desiccated or baked, offering firm resistance to the touch. This was observed in *two* of the cases in *private* practice; in *three* of the *hospital* cases of *Typhoid*, in *four* of the cases of *Typhus*, and in *one* of the cases of *doubtful type*.

The dryness, in some cases, extended over the whole superior surface, and, in other cases, was limited to the centre—a moist margin, of variable width, existing on either side. The latter was observed in *one* of the cases in *private* practice; in *eight* of the *hospital* cases of *Typhoid*, in *four* of the cases of *Typhus*, and in *two* of the cases of *doubtful type*.

The dryness was in no case observed at the commencement of the febrile career. In all the cases that came under observation at the commencement, the dryness did not appear until several days had elapsed; and in every instance in which dryness was present at the time the case was first observed, the disease had existed for several days. This condition, therefore, although so frequently present in Continued Fever, does not belong to the early stage.

What does this symptom denote? in other words, what are the causes which produce it? Diminution of the secretions from the salivary glands and mucous follicles is, doubtless, a cause; but it is not, probably, the sole cause. It proceeds, in part, from the condition of the mind incident to Continued Fever. Owing to the apathy as respects painful sensations, the patient appears to experience little or no discomfort from the dryness and hardness of the tongue. He, therefore, does not move the organ sufficiently to diffuse the scanty salivary secretion over its surface. The tongue, moreover, participates in the inertia of the muscular system. It remains motionless. The somnolency which obtains in the majority of cases, contributes to this symptom. The patient lying most of the time somnolent, respiring through the mouth, (the nasal passages frequently being more or less obstructed,) the surface of the tongue is desiccated by the current of air passing over it.

The correctness of the above explanation is proved by the following considerations:—Patients very seldom make any complaint of the condition of the tongue, however dry and hard it may be. The dryness and hardness do not come on during the early part of the febrile career; nor, (as has been seen in the preceding Section,) do somnolency, muscular inertia, and mental apathy. The former and the latter occur concurrently, at the same period in the febrile career; and, as a general remark, it will probably be found that they disappear together. Finally, the degree of dryness and hardness will be found to bear a certain degree of correspondence with the ataxic symptoms just mentioned; nor are the former present, as a general rule, in cases in which the latter are absent. In evidence of the statements last made, I have examined,—*first*, the symptoms referable to the nervous system in all the cases in which dryness of the tongue was *not* present, and the results are as follows:—of the *eight* cases in *private practice*, in which dryness of the tongue was not noted, in *one*, the tongue could not be inspected, except at first, owing to parotitis; in one, the patient died on the third day; and in one, the records contain nothing on the subject. Of the remaining *five* cases, somnolency, muscular inertia, and mental apathy, were not marked in *one* case, and were almost absent in each of the other cases, all of which were extremely mild as respects the grade of severity of the disease. Of the *hospital* cases, in the two instances of *Typhoid*, in which dryness of the tongue was *not* noted, active delirium, followed by coma, existed in *one* case, the patient dying on the sixth day; in the other case, ataxic symptoms were absent. In the *two* cases of *Typhus*, in which dryness of the tongue was *not* noted, in *one* case, the tongue could not be inspected, owing to parotitis, and in the other case there existed hilarity and playfulness, without either somnolency, muscular inertia, and mental apathy. Of the *three* cases of *doubtful type* in which dryness of the tongue was *not* present, in each case the nervo-muscular symptoms just mentioned were absent. *Second*, I have examined the symptoms referable to the nervous system in the cases in which dryness and hardness of the tongue existed, and find in all but *two*, (in which the records are defective,) evidences of the presence of somnolency, muscular inertia, and mental apathy—in other words, of ataxic symptoms. As the histories do not state the degree of these symptoms, I am unable to ascertain whether, in that respect, they corresponded with the degree of dryness which the tongue presented.

In conclusion, then, we are warranted in saying that, although dryness and hardness of the surface of the tongue denote deficiency of the secreted fluids poured into the mouth, they are to a considerable extent dependent on the condition of the mind and muscular system, and may be considered, to some extent, as measuring the disorder of the latter.

Coating. In *forty-seven* of the *fifty* cases in which the appearances of the tongue were noted, it was more or less *coated* during the febrile career. Of the remaining *three* cases, (all of which were of the *Typhoid* type,) in *one* there does not appear to have been any coating; in *one*, there was none for the first two or three days after the case came under observation; but the tongue could not be inspected afterward, owing to parotitis, affecting both sides; and in *one*, there was merely a slight opacity, hardly sufficient to be called a coating. Under the head of *Coating*, I mean to include all instances in which a morbid secretion, or exudation, was deposited on the superior surface of the tongue. It is common to distinguish a *furred* or *frosted* tongue, from one which is *coated*, the latter being applied when the morbid deposit is of an appreciable thickness. For the sake of convenience, however, I have used the term *Coating* in a sense broad enough to embrace the former as well as the latter. The coating varied much in the different cases as respects thickness. All of the histories do not contain precise information on this point, but, in the majority of instances, it is stated either that the tongue was *thickly coated*, or *thinly coated*, or merely *furred*. The enumerations with regard to these three modifications of coating are as follows:—Of the *eleven* cases in private practice, in which coating is noted, it is simply stated, that the tongue was *coated* in *three;* it was *thickly coated* in *four;* it was *thinly coated* in *two*, and *furred* in *two*. Of the *eighteen hospital* cases of *Typhoid*, it was *coated* in *four; thickly coated* in *two; thinly coated* in *six; furred* in *five*, and no coating existed in *one* case. Of the *twelve* cases of *Typhus*, it was *coated* in *five ; thickly coated* in *three; thinly coated* in *two; furred* in *one* case, and the organ could not be inspected, owing to the existence of *parotitis*, in *one* case.

Of the *eight* cases of *doubtful type*, it was *coated* in *four; thinly coated* in *two; thickly coated* in *one* case, and *furred* in *one* case. The cases of the different types of Continued Fever presenting respectively these differences in thickness of the coating, are not uniform in number, but the discrepancy is not such as to warrant the conclusion that either modification is more likely to occur in the *Typhus*, than in the *Typhoid* type. Not less disparity would, very likely, be found on comparing different collections of cases of the same type, than in the comparison, in this particular, which these cases afford of the two types. We should not expect to discover in the varieties of this symptom any traits distinguishing one type of the fever from the other, inasmuch as these varieties are based on differences in degree merely, not in kind, and, moreover, are common enough in other, and, indeed, in almost all affections.

There seems to be no room for the inquiry whether the coating has any connection with any other particular symptoms, or group of symptoms, belonging to the natural history of Continued Fever. Occurring, as the symptom does, in almost every case of Continued Fever, it must be dependent on some one or more of those morbid changes which constitute the elements of the febrile state. Farther than this, in the present state of knowledge, we are unable to carry the explanation of this, as well as various other symptoms appertaining to the disease under consideration.

The only remaining points of inquiry which occur to me under this head are, *first*, to examine the histories of the few cases in which the tongue was not coated, in order to see in what respect they differed from the others; and, *second*, to compare some of the cases in which the tongue was *thickly coated*, with some of those in which the coating was *thin*, in order to see if the degree of coating affords, to any extent, a criterion of the severity of the disease.

As already stated, in but *three* cases is the absence of coating noted, and in *one* of these cases the tongue could not be inspected after the first two or three days, owing to parotitis. The patient, in this case, at the time she was attacked with fever, was suffering from *stomatitis materna*, and the tongue presented a characteristic reddened, excoriated appearance. One of the remaining cases was the case in which the tongue preserved its normal appearance save a very slight opacity. This case was distinguished for its mildness, and short duration. In the other case, the tongue was reddened, glazed, and somewhat fissured. The patient, in this case, had been ill eleven days before entering the hospital. It is highly probable that there had existed coating of the tongue, which had exfoliated prior to his entrance. The case was one of medium severity, and was not distinguished by any peculiar features. Convalescence was pronounced on the fourteenth day after his entrance. It will be observed that the circumstances appertaining to each of these cases were such that the latter are hardly to be considered exceptions to the general rule, as regards the uniform existence of more or less coating of the tongue in the present collection of cases of Continued Fever.

With regard to the second point of inquiry, I have examined and compared cases sufficiently to ascertain that the thickness of the coating cannot be considered as denoting the gravity of the disease, or the danger of the patient. Whether, in the larger proportion of severe or fatal cases, the tongue may be thickly, or thinly coated, I am not prepared to say—the present collection of cases is too small to afford statistical results adequate to the settlement of this question. But that, if any such law exists, the exceptions are sufficiently numerous and striking to render its application to individual cases nugatory, my cases afford sufficient evidence. Of *two* of the fatal cases of *Typhoid*, the tongue was merely *furred* in *one*, and, in the other, at first furred, and subsequently thinly coated. In *one* of the fatal cases of *Typhus*, it was thinly coated. On the other hand, in several cases in which the tongue was thickly coated, the disease was mild. In the fatal case of *Typhus* occurring in private practice, in which death occurred on the morning of the fourth day, the tongue presented a normal aspect, except that it was tremulous, for the two first days, and became thickly coated on the third day.

It appears pretty obvious that very little importance is due to the degree of coating on the tongue in any of the practical relations, or bearings, in which the symptoms of disease are to be considered.*

The coating of the tongue, in the majority of cases, appeared early in the disease, preceding *dryness*. The tongue, however, was not thickly coated at first, in several cases in which it became so at a subsequent period. It was frequently at first simply furred, and in the progress of the disease became thickly coated. As a general rule, the coating became thinner toward convalescence, and gradually disappeared—leaving the appearance of the organ healthy. In a few cases, however, the tongue continued somewhat coated after convalescence was established.

The color of the coating was generally white, or dirty white, sometimes yellowish. In *seven* cases it became of a dark color. *Four* of these were cases of *Typhoid; two* in *private practice*, and *two* in *hospital; two* were cases of *Typhus*, and *one* was a case of *doubtful* type. In *one* of these cases the disease proved fatal, but in the other cases the disease was either mild, or of a medium grade of intensity; so that there is very little, if any, foundation for the idea that the dark, or black color of the coating, in cases of fever, denotes extreme danger. This idea is entertained by some, who regard the coating as representing a perverted state of the fluids, and the dark color as denoting putrescency.

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* The foregoing results relating to *dryness of the surface of the tongue*, and *coating*, appear to present a striking disparity on comparison with those developed by the researches of Louis. He found in a considerable number of cases, the tongue natural, or nearly so. This was true of grave and fatal cases as well as of those of a mild grade. The appearances which the tongue presents are so obvious, and offer so little room for error of observation, that, with every disposition to distrust my own ability as an observer, I cannot admit the supposition of incorrectness, in the histories I have collected.

In the cases analyzed by Dr. Jackson, the tongue appears to have been more uniformly altered than in the cases analyzed by Louis. Dr. Jackson says, "with few exceptions the tongue was noted as coated, or furred."

Exfoliation of the coating during the career of the disease, occurred in *three* cases—*one* case being of the *Typhoid*, *one* of the *Typhus*, and *one* of *doubtful* type. In the first of these three cases the tongue became subsequently dry and hard, and another coating succeeded. In the *two* other cases the tongue, directly after the exfoliation, was moist, and of natural color, and the occurrence of a second coating is not mentioned. In each of these three cases the disease was mild.

A *scabby* appearance was noticed in a few cases, viz., *two* cases of *Typhoid*, and *two* of *doubtful* type. This appearance was owing apparently to dryness and coating co-existing, the morbid deposit on the tongue becoming cracked and subdivided into small portions, which were partially detached.

In *two* cases, *one* of *Typhus*, and *one* of *doubtful* type, the coating was in discrete patches; but in all the other cases it was either diffused over the whole superior surface, or extended across the base, and, more or less, toward the tip, or covered a margin on each side of the whole length of the organ.

The pathological explanation of coating does not fall within the scope of this report, but the reflection arises, how little we know of the causes of this symptom in any, and all of its varieties—in other words, of the morbid changes of which the symptom is the immediate effect. Its mysterious character is perhaps less appreciated on account of its being so common. But that a morbid product should be deposited on the surface of the tongue, without any other appreciable evidences of disease of that organ; that the presence of this product should so often denote the continuance of disease, and its disappearance signalize the occurrence of convalescence, is certainly a curious fact, and one which, in the present state of knowledge, cannot be accounted for. All that is known of this symptom, as a symptom, or sign, has been obtained by observing its association with other events, and in all diseases, as well as in Continued Fever, its special significancy is quite limited.

Redness of the tongue. The superior surface of the tongue was reddened in *seven* cases of the *Typhoid*, and in *one* case of *doubtful* type. This appearance was not observed in any of the cases of *Typhus*. In *one* of the cases of *Typhoid* the redness was associated with *stomatitis materna* or the sore mouth of nursing women, under which the patient was laboring when attacked with fever. In *two* of the remaining cases, the disease proved fatal. In one of the fatal cases, the disease was characterized by active delirium. Vomiting was not present, nor diarrhœa. The only gastric symptom was thirst, which was, at first, considerable. At the autopsy, in this case, there were found punctated redness and softening of the mucus membrane, together with several ulcerated patches. The papillæ of the tongue were unusually prominent in this case. In the other fatal case, vomiting, and other gastric symptoms, are not mentioned, and diarrhœa did not exist. Moderate tympanites and abdominal tenderness were present. At the autopsy the stomach was not examined. In the *four* remaining cases the disease was not severe, save in one case. Symptoms indicative of disorder of the digestive tube, in these cases, respectively, were as follows:—In *one*, moderate diarrhœa—no vomiting. Convalesced on the tenth day after entrance, and left the hospital on the sixteenth day. The redness of the tongue, in this case, continued after convalescence was established. In *one*, neither vomiting, nor other symptoms of unusual gastric disorder were present, and diarrhœa did not exist. In *one*,—the same as in the last case. This case was tolerably severe. In *one*, no vomiting or other gastric symptoms, and diarrhœa was not prominent. In the case among those of *doubtful* type, no gastric symptoms were present, but moderate thirst, at first. Diarrhœa did not exist, and distension and tenderness of the abdomen were absent.

The fact that in no case of *Typhus* was redness of the tongue present, is perhaps worthy of note.

I have given this summary of the other symptoms referable to the digestive system in the cases in which a reddened tongue was observed, because the idea still prevails, to some extent, with practitioners, that this appearance denotes either inflammation, or notable irritation of the mucus membrane, lining the digestive canal, and more particularly the stomach. In so far as symptoms are concerned, the above instances afford no evidence in support of this hypothesis. The fatal case in which the stomach was examined, it is true, was characterized by gastric disease which was not indicated by gastric symptoms during life. The researches of Louis, however, have established, conclusively, that in fatal cases of Continued Fever there does not exist any constant connection between the appearance of the tongue, and the existence of lesions of the stomach.

Tremulousness of the tongue. Tremulousness was observed in *seven* cases, viz., in *three* of *Typhoid*, and in *four* of *Typhus*. *Three* of these were fatal cases. In the other instances in which this appearance was noted, the disease was not of very great severity. Nor was this appearance associated with singultus, tremor of other muscles, or marked disorder of the nervous system, in any case excluding the fatal cases. In *one* of the cases the tongue continued somewhat tremulous during convalescence, and even at the time the patient left the hospital, six days after convalescence was established, remaining, also, somewhat reddened. A tremulous state of the tongue, then, cannot be considered as representing a condition of the muscular system in general, nor as an indication of the degree to which the nervous system is affected. And although, as it would seem, it is apt to occur in cases which prove fatal, its presence need not affect very materially the prognosis, since it also occurs in cases in which the disease is of a medium grade of intensity.

Difficulty of protruding the tongue. This existed, to a greater or less extent, in *six* cases, viz, in *two* of *Typhoid, three* of *Typhus*, and in *one* case of *doubtful* type. In two of the *Typhoid* cases the difficulty was not great. The patient only did not readily succeed in the effort to protrude the tongue. In the other *Typhoid* case the patient was wholly unable to accomplish the protrusion, but this inability existed during one day only. This was the day before the decease; and on the day of the decease he succeeded in protruding the tongue without great difficulty. In this case, also, there was loss of the power of articulation for the last two days of life. The patient could be roused to make an effort to speak, moving his lips, but uttering no articulate voice. In the *two Typhus* cases the difficulty of protruding the tongue was great. One of these cases was characterized by apoplectic coma, and there existed great difficulty in moving the upper extremities, as well as the tongue. In the other case the patient exhibited unusual somnolency, which eventuated in coma. This case ended fatally. In the case of *doubtful* type, there existed inability to protrude the tongue on the first day of entrance, unusual feebleness of intelligence co-existing. The patient could not be made to reply to questions. The ability to protrude the tongue was recovered on the following day, and, at the same time, there was improvement in the state of the intellect. In all the cases, save one, the difficulty in protruding the tongue, corresponded, in degree, with the diminished power of exerting acts of the will to produce voluntary motions; and in the excepted case, the difficulty was inconsiderable in degree. It would seem, therefore, that this symptom, in so far as it may possess any special significance, is more a criterion of the condition of the mind, than of the muscular force.

A remark suggests itself in this connection which is not limited in its application to cases of Continued Fever. It is, that patients whose intelligence is so far compromised that they cannot be made to reply to questions, may often be induced to protrude the tongue, or to make an effort to do so. The mental apprehension seems sometimes not to extend beyond the request to perform this single act. I know of no way of accounting for this curious fact except that, as the inspection of the tongue always enters into the daily examination of cases of disease, it becomes so associated with the visit of the physician, that, if a patient retains mind enough to recognize his medical attendant, he almost instinctively apprehends the request to protrude the tongue. It requires, from the association just mentioned, less mental effort than to understand and comply with other requests.

More or less hesitancy in protruding the tongue was frequently observed, although pains were not taken to note observations concerning this point in the histories. It appeared, often, as if the patients took time for deliberation before exerting the act of volition, and the protrusion was made very slowly, as if the organ were not fully under the control of the will. This, doubtless, proceeds from the same mental condition which, when greater in degree, leads to difficulty in performing the act, or entire inability to accomplish it. Instances were also noticed in which, when the tongue was protruded, the patient seemed to forget to withdraw it, and it was necessary to request him to do so.

A few appearances were noted in addition to those already considered, which I will mention, in order to embrace *all* that the histories contain with respect to the tongue. The tongue itself became *fissured*, or *cracked*, in *four* cases, all of the *Typhoid* type. In *one* of these cases, the fissures did not heal for several days after convalescence was established. In all, the *fissures*, or *cracks*, occurred while the surface of the organ was dry and hard. The superior surface was noticed to be remarkably *smooth* in several (*five*) cases; and in *three* of these cases it presented a *glazed* appearance. The *smoothness* was apparently owing to dryness, the tongue being clean, and the *glazed* appearance to dryness with a thin stratum of coating.

Finally, in one case, indentations of the teeth on the sides of the tongue were noted.

Variations in the volume and form of the tongue, if they existed, were not recorded.

The different appearances of the tongue found in the cases collectively, having thus been considered, it remains to direct attention to the second point of view under which this class of symptoms are to be studied, viz. the different appearances which are successively presented in individual cases. This view of the subject has been, in a measure, anticipated in the foregoing remarks. To present the facts under this view accurately and comprehensively, it would be necessary to give an account of the succession of appearances in almost every case distinctly; for, very few cases are to be found in which precisely the same appearances are presented, occurring in the same order of succession and time. But this minuteness of detail would not subserve any interesting or important purposes, since it is, obviously, impracticable to deduce any fixed laws regulating the succession of appearances, or to arrive at any practical results. It will suffice, therefore, to dismiss this branch of the subject with a few general remarks. The cases differed considerably as respects the number and kind of appearances which, respectively, they presented during the febrile career. In some cases the tongue remained simply furred; in others, it was furred at first, and thickly coated, subsequently; in others, it was furred, or thickly coated, early in the career, becoming more or less dry subsequently, and sometimes alternately moist and dry at different times. In a smaller proportion of cases the various other appearances occurred—in some cases one only of these appearances, and in others several—viz., tremulousness, redness, fissures, etc. All this, indeed, would be inferred from the account previously given of the various appearances under distinct heads. And it would be sufficient to say, under this division of the subject, that the analysis reveals nothing with reference to the number and succession of appearances in individual cases, which has any marked bearing on the distinctions between the two types of fever, or the relations of the tongue to other symptoms; moreover, the number and succession of appearances do not differ in any striking particulars in the cases which proved fatal, from some of those which ended in recovery.

In conclusion, with respect to the appearances of the tongue in Continued Fever, judging from the results of the present analysis, their value, as symptoms, cannot be considered very great. Here, as in the case of other symptoms, it does not enter into my plan to inquire to what extent similar appearances are to be observed in other diseases than Continued Fever. This, it is obvious, is a very important inquiry in order to determine in how far the phenomena described are peculiar to the disease under consideration. With regard to this comparison, the most accurate and extensive collection of recorded observations are doubtless to be found in the researches of Louis. But as regards the class of symptoms just considered every practical reader is already aware that those which have been enumerated are not, in an eminent degree, distinctive of Continued Fever, although, probably several of them are oftener found in connection with that disease than in most other acute affections. As a general remark, however, they do not possess any very special significancy; in other words, they have not in the present state of knowledge very important bearings on the diagnosis, pathology, prognosis, or therapeutics. The results of enumeration and comparison in their application to this class of symptoms, are rather negative than positive. But here, as in other instances, by tending to disprove some errors which are more or less in vogue, these results are of scarcely less value, than if they disclosed important practical truths.

Sordes. The presence of *Sordes* on the teeth, or lips, or on both, was noted in *fourteen* cases, viz., in *six* cases of *Typhoid;* (*two* cases in private, and *four* in hospital practice;) in *six* cases of *Typhus*, and in *two* cases of *doubtful* type. In *six* of these cases the deposit was confined to the teeth; in *six* it extended to the lips, and in *two* cases its situation is not mentioned. In all the cases in which it was observed on the lips, it also existed on the teeth. In *five* of the cases in which sordes was present, the disease proved fatal. In *eleven* of the cases the tongue was either dry, or dry and hard. In *thirteen* of the cases, the tongue was more or less coated; and in the remaining case the tongue could not be inspected, owing to Parotiditis. In no case in which sordes was present, could the disease be called mild, and in most of the cases, exclusive of those which proved fatal, it was severe, and attended by considerable prostration. In the other cases the grade of intensity was not far from medium; and in the latter cases the sordes was not abundant.

This symptom very rarely occurs in the early part of the febrile career. In *one* of the cases, however, it appeared, and the deposit was abundant, on the third day. At the same time that the sordes appeared on the teeth and lips, in this case, the tongue, which for the two previous days had been natural in appearance, became thickly coated. The rapidity and abundance of the deposit in this instance, show, pretty conclusively, that it involves some change in the character of the secretions of the mouth. This case was of the *Typhus* type, and ended fatally on the fourth day.

In so far as the changes in the salivary fluids giving rise to sordes are concerned, they do not belong intrinsically to the disease, or, at all events, if they uniformly take place, they are very unequal in degree, inasmuch as the deposit is observed only in a limited number of cases. Its presence is to be regarded as denoting gravity, since, in three-sevenths of the cases in which it was observed, the disease proved fatal, and in no instance in which it occurred was the disease mild, but generally it was severe. Nevertheless, it was absent in some fatal cases, and by no means uniformly present in cases which were of a severe grade. There seems to be no foundation for the idea, which has been entertained, that it is specially significant of adynamia. Nor does it indicate, more than a dark color of the coating of the tongue, a putrescent state of the fluids. Co-existing, as it does, with more or less coating of the tongue, it seems fair to infer that it proceeds from a cause common to both; and being also found generally in connection with dryness of the tongue, we may presume that it is, in a measure, owing to the mental condition which, as has been seen, induces, in part, the latter condition.

Hæmorrhage from the Gums. Oozing of blood from the gums occurred in *two* cases, both of the Typhoid type, one in *hospital*, and the other in *private* practice. In *one* case (private practice) the disease was mild, unattended by delirium, accompanied by mild diarrhœa, tongue thinly coated, convalescence dating from the twenty-first day. The hemorrhagic effusion occurred in the latter part of the disease, blood exuding pretty freely, so as to color constantly the saliva, and to form incrustations on the lips. In the other case the disease proved fatal on the tenth day. The hemorrhagic effusion occurred on the sixth day, forming bloody incrustations on the lips. He complained of soreness in the throat, and a sense of dryness in the mouth. Diarrhœa did not exist in this case. The tongue was coated, at times somewhat dry, and tremulous. In neither of these cases did hemorrhage occur from the bowels, or from any part except the gums.

An *herpetic eruption about the mouth* was observed in *one* case. Lest the occurrence of this symptom may suggest a suspicion that the disease was, in this case, *remitting* fever, in which herpetic eruptions in that situation are apt to occur, it may be stated that no doubt could exist as to the diagnosis, the characteristic *maculæ*, together with other distinguishing traits, being present.

Parotiditis. In *five* cases, the parotid gland on one, or both sides, was the seat of inflammation, proceeding to suppuration in all but one case, and in the excepted case death took place before sufficient time had elapsed for the suppurative process to be completed. In *two* of these cases the disease was *Typhoid*, in *one*, *Typhus*, and in *two* the type was *doubtful*. One of the cases occurred in *private*, and the other cases in *hospital* practice. In the *first* case in which this complication occurred, the patient entered the hospital, March 29, 1849. Prior to this case I had never met with this complication in Continued Fever. *Two* other cases occurred at the hospital in November, 1849; and the remaining hospital case was in December, 1849. The case in private practice occurred in May, 1850.

In *two* of these *five* cases the disease proved fatal.

It is due to the importance of this intercurrent affection to devote to each of these cases some special consideration. In the *first* case, the patient entered the hospital five days after taking to his bed. The parotid of the right side began to swell on the second day after his entrance. It became greatly enlarged, hard, painful, with erythema of the surface, and proceeded to suppuration, opening below the ear, and also into the *meatus auditorius*. A large quantity of pus, and sanguinolent fluid, was discharged through these two orifices. The discharge of purulent matter continued during the career of the fever, and for several weeks afterward. A portion of cellular tissue about the size of the end of a finger, sloughed, and came away through the orifice below the ear. Owing to the swelling, and the pain in moving the jaws, the patient could not, for several days, open the mouth sufficiently for the tongue to be inspected. Convalescence was dated on the fourteenth day after his entrance. This was a case of Typhus, presenting the characteristic eruption of that type. Diarrhœa, tenderness, and meteorism were not present. Passive delirium, with getting out of bed, somnolency, some subsultus, and on one day carphologia, were noted in the record of this case.

In the *second* case, it is not stated whether the patient had been confined to the bed before entering the hospital. On the *seventh* day after his entrance, swelling of the left parotid commenced. The swelling was considerable, accompanied with redness, soreness, and pain. In this, as in all the other cases, before suppuration was accomplished, the swelling was remarkably hard, or resisting to the touch. Eight days after the commencement of the swelling, fluctuation being apparent, an incision was made, and a large quantity of pus evacuated. In two or three days afterward, another and distinct collection of pus was opened. The discharge continued, but gradually diminished, and at the time of the decease, the swelling was much reduced, and the quantity of pus small. This case terminated fatally on the twenty-third day after entrance. Diarrhœa, meteorism, and tenderness were absent in this case. Delirium, and other ataxic symptoms, were not prominent. The disease did not seem to be of a severe grade of intensity, and death, apparently, was determined by the affection of the parotid. This case is included among the cases of *doubtful* type. No autopsy was had. In the *third* case, the affection of the parotid commenced four days after convalescence was pronounced. Properly the affection in this instance should be classed among the events of convalescence, or the *sequelæ.* The patient had entered the hospital twelve days before the date of convalescence. He had not taken to his bed before entering the hospital, but had been ill for about twenty days, making strong efforts to keep about, and resist yielding to the disease. The swelling, in this case was large, tender, hard, and painful, and the surface reddened, and it proceeded to suppuration. An incision was made when fluctuation was discovered, but the abscess also ulcerated and discharged through the *meatus auditorius.* Diarrhœa, meteorism, and tenderness were not present in this case. Delirium was also absent. Eryepelas of the face succeeded the parotiditis. The patient was quite well forty days after his entrance. This case, also, is embraced among the cases of doubtful type.

In the *fourth* case, swelling of the right parotid commenced on the *sixth* day after the patient entered the hospital, and *ten* days after the attack. The patient was a female. The swelling was large, somewhat livid, with redness, tenderness, and pain. On the day succeeding that on which the swelling of the *right* parotid commenced, the *left* began to enlarge, and it soon became greatly swelled, reddened, painful, and tender. The inflammation on both sides proceeded to suppuration. On the twelfth day, fluctuation being apparent in both sides, an incision was made, giving exit to a copious purulent discharge. A portion of cellular tissue protruded through the orifice on the left side, and sloughed away. There was no discharge into the *meatus,* in this case. There was no diarrhœa in this case, but moderate tenderness, and meteorism. Delirium was slight. Moderate somnolency existed. It was difficult to fix the day of convalescence. She sat up on the twenty-fourth day after her entrance, and the last record was made on the twenty-eighth day, when there was still some discharge from the abscesses. This case was of the *Typhoid* type.

In the *fifth* case, the fever had existed five days before the patient received medical attention. In this case the patient was a female. She was suffering from nursing sore mouth when attacked with fever. On the *seventh* day after the attack, the right parotid began to swell, and became greatly enlarged, hard, reddened, and painful. Death occurred on the ninth day, the affected parotid still being greatly enlarged, and resisting to the touch. This case was of the *Typhoid* type, and occurred in private practice. It was characterized by mild diarrhœa, tenderness, meteorism, passive delirium, somnolency eventuating in coma, the patient dying in the latter state.

Parotiditis is certainly a much rarer complication of Continued Fever than would appear from the proportion of instances in which it was present in this collection of cases. It is not mentioned in the researches of Louis, nor is it alluded to in the treatise by Bartlett. In Christison's work on fever, and in Copland's dictionary, I find it referred to, as an event which occasionally occurs toward convalescence, in some cases, proving critical, and therefore desirable. These views are not sustained by the facts in the cases that have come under my observation. In all, save one, the affection occurred before convalescence was to have been expected, and in the excepted case it occurred after convalescence was declared. In all the cases it was a serious complication, not only adding to the sufferings of the patient, but increasing the severity of the disease, and, in one instance, it appeared to be the determining cause of a fatal issue.

That this affection should have occurred in *five* out of *thirty* cases coming under observation between the dates of the first and last of the cases in which this complication existed, is a remarkable fact, of which I can offer no explanation. It may possibly be suspected that a contagious influence was transmitted from patient to patient; but there is no ground for this hypothesis. The specific form of parotiditis was not prevalent at the hospital during the period these cases transpired, nor, except in one instance, were the patients brought into contact with any other patients laboring under this complication. It occurred in two patients in the same ward, successively, with a few days' interval. In the other two hospital cases, the patients were not in wards in which any case had occurred, and the case in private practice had no connection whatever with the cases at the hospital. The fact can only be considered as exemplifying what Sydenham and others have remarked—that fever, at different times and places, may be characterized by peculiar and various local tendencies, and science is no better prepared to explain their occurrence now, than at any past period in medical history.

Nausea and Vomiting. Nausea and vomiting occurred in a very small proportion of the cases, viz., of the cases in *private practice*, in *three;* of those in hospital, *Typhoid*, in *three* cases; *Typhus*, in *one; doubtful type, two.* The vomiting, in all these cases, was slight, and in all it occurred early in the career of the fever, as follows:—of the private cases, in *one* instance it occurred once before the case came under my observation, and may have been owing to remedies; in *another* instance remedies were rejected for the first few days; in the *third* instance slight vomiting early in the disease. Of the *hospital* cases, *Typhoid*, in *one* instance, it is noted that the patient vomited early in the disease; in *another* instance the patient vomited on the day of attack and not afterward, and in the *third* instance remedies were rejected on the first day. In the single case of *Typhus*, the patient vomited two or three times early in the disease. Of the *two* cases of *doubtful* type, in *one* the patient vomited once on the second day, and in the *other* case vomiting occurred several times during the first few days.

Vomiting occasionally occurred after the administration of antimony, but the instances in which this symptom was obviously the result of that remedy, are not included in the above. It is to be recollected that the present enumeration embraces only those instances in which vomiting occurred after the febrile career was established. This symptom occurs in a larger proportion of cases, if the access be included. It is also to be borne in mind that in a considerable number of the hospital cases the febrile career had continued for a greater or less period before the patients came under observation. In some of these cases vomiting may have occurred, and the fact not have been noted in the *previous history.*

I should state that in the great majority of cases in which the occurrence of vomiting is not noted to have occurred, no mention is made of this symptom in the histories. It is, however, quite improbable that in any of these cases it should have occurred after the patient came under observation, and not been embraced in the record. Certainly this could not have been the case if the symptom had been in any degree prominent.

In one of the cases in which vomiting occurred, the disease was fatal. The stomach, in this case, at the autopsy, was found to be normal in size, the mucous membrane of a dingy brown color, notably thickened, and somewhat softened, without redness or vascular injection. The vomiting, in this case, occurred only two or three times, and in the early part of the disease. It was not a prominent symptom. In two fatal cases in which the stomach exhibited lesions, ulcerations existing in one case, vomiting is not noted to have occurred.

The foregoing facts are chiefly important in a negative point of view, that is to say, they go to show that nausea and vomiting rarely occur in Continued Fever, and when they are present, they are not prominent as symptoms, and are confined to the early part of the febrile career. Negative results of this kind are sometimes scarcely less valuable than those which are positive. In this instance the infrequency of vomiting is important to be taken into account in the discrimination of Continued from Remitting Fever, the symptom occurring much more frequently in the latter disease.

Pains in the stomach, and other gastric symptoms, inclusive of tenderness on pressure over the epigastrium, are not mentioned in any of the histories. It is possible that had attention been directed carefully to these points, something might have been observed worthy of being recorded. Any evidences of gastric disorder, however, which were prominent, would not have been likely to have escaped notice.

Alvine Discharges. Questions relating to the nature of the distinction between the two types of Continued Fever, (Typhus and Typhoid,) and to the practical discrimination of each from the other, involve especially morbid conditions of the intestinal tube and their symptomatical expressions. The facts, therefore, embraced under the heads which remain to be considered in this Section, are to be studied with care in each type separately, and the results compared.

Typhoid. Cases in Private Practice. Of the *thirteen* cases, diarrhœa was present in *twelve.* It was mild in degree, or slight, in *seven* of these cases. It was severe and persistent in but *one* case. It was confined to the early part of the career of the fever in *four* cases. It followed the operation of cathartics in *four* cases.

Cases in Hospital. Of the *eighteen* cases, diarrhœa was present in *nine.* It was mild, or slight in degree in all but *two* cases, and *one* of these cases was fatal. It was limited to the early part of the career of the fever in *three* cases, and in *one* of these cases continued but for a single day. It occurred in the latter part of the disease in *one* case. It continued, more or less, through the career in *five* cases.

Typhus. Diarrhœa followed a cathartic in the single case of Typhus in private practice.

Hospital Cases. Of the *twelve* cases, diarrhœa was present in *four.* The discharges were thin, but not too frequent in *one* case not included in the above. In all the cases it was very mild, being present but a single day in *one* case. It was limited to the early part of the career of the fever in *three* cases. It occurred in the latter part of the career in *one* case.

Adding the cases in private practice to those in hospital, diarrhœa was present in *twenty-one* of *thirty-one* cases of *Typhoid;* and in *five* of *thirteen* cases of *Typhus.* Moreover, in degree it was more uniformly slight in the cases of *Typhus.* This comparison, then, goes to show that diarrhœa occurs more frequently in the *Typhoid* than in the *Typhus* type of fever, and that, although mild in degree in the great majority of cases of both types, it is more uniformly slight in Typhus.

I should define the sense in which I have used the term *Diarrhœa.* I have not applied the term to express the character of the dejections, so much as their frequency. The character of the dejections, as will be seen in an appropriate connection, were in a large proportion of cases not ascertained. They may have been thin in some cases in which their frequency was not much, if at all increased, and in these instances diarrhœa would not be noted to exist. The patient was not considered to labor under diarrhœa while the dejections numbered only one, and occasionally two in the twenty-four hours. This explanation will serve, in some measure, to explain the greater frequency of this symptom in the cases analyzed by Louis, a fact which I find on reference to his work since the foregoing results were written. Louis evidently considers liquid dejections as constituting diarrhœa. Were it practicable to apply this rule to my cases, the number of instances in which this symptom was present, would, probably, be greater.

The reader will have observed that the proportion of instances of diarrhœa is greater in the cases in private practice than in those in hospital. Why is this? The only explanation which offers itself is, that, in most of the cases in private practice, cathartic, or laxative remedies were prescribed, while they were administered very rarely in the cases at the hospital. The latter fact is important to be taken into account in the consideration of the abdominal symptoms in the latter cases. It will be noticed that in four of the cases in private practice the diarrhœa followed, and apparently was occasioned by cathartic remedies. The practical considerations connected with this point will come up more appropriately under the head of the *Treatment of Continued Fever.*

With a view to the comparison of the fatal cases with the average of those not fatal, as respects this symptom, I will examine the former to ascertain in how many instances diarrhœa was present. Of the *two* cases of *Typhoid*, and the single case of *doubtful* type, in *private practice*, proving fatal, diarrhœa was present in all. It was a prominent and persistent symptom in *one* case; moderate, and easily relieved in *one* case, and the degree is not stated in the remaining case. It was present, after the operation of a cathartic, in the case of *Typhus* in this group. Of the *four* fatal cases of *Typhoid*, of those in *hospital*, diarrhœa was present in *two*. In *one* of these cases, it existed early in the disease, and was followed by obstinate constipation, resisting several drops of Croton oil. In another of these cases costiveness existed.* In *one* case only was the diarrhœa considerable and troublesome. Of the *two* fatal cases of *Typhus*, in *hospital*, diarrhœa was not present in either case. The dejections were *thin* in one of these cases, but not too frequent.

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* This case is reported in full under the head of Delirium.

The connection of this symptom with lesions of the intestinal tube is an interesting point of inquiry, but this will be more appropriately considered in connection with the latter subject. *Costiveness*, more or less, was present in *five* cases of *Typhoid* occurring in *private* practice. In *one* of these cases bloody stools took place; in *one*, the costiveness was followed by diarrhœa on the administration of a cathartic; in *one* the costiveness followed diarrhœa present in the early part of the disease; in *one* it existed throughout the career, except that a cathartic excited hypercatharsis; in another case it continued, but cathartics occasioned profuse discharges; in another case it continued until the fourth day, and was followed by severe and persistent diarrhœa. *Costiveness* was present in *five* of the *Typhoid* cases in *hospital*. In one of these cases, it followed diarrhœa, and in another case it was followed by diarrhœa.

In *four* cases no dejection occurred for *three* days, and in *two* cases none for *four* days.

Of the *Typhus* cases in *hospital*, and in *private practice*, *costiveness* existed in *three*. In one of these cases no dejection occurred for several days, and in *two*, none for *four* days.

The character of the evacuations, as already stated, in a large proportion of cases, was not observed. This was owing to the difficulty of preserving them distinct, and retaining them until the time of the daily visit. In *two* of the cases in which the records contain information on this point, the dejections are stated to have been moulded, and natural in appearance. These cases were of the *Typhoid* type. In *six* cases of the same type, the evacuations were thin and yellow, and in one case thin and of a brown color. Of the cases of *Typhus*, in a single instance only was the character of the evacuations noted, and in this case they were thin and yellow.

Hemorrhage from the bowels occurred in *two* cases, both of the *Typhoid* type. In both cases, the disease terminated in recovery. One of the cases occurred in *private practice*, and the other in *hospital*. In the former case, the discharge of blood occurred on two occasions, castor oil having been given a few hours previously to each time. The hemorrhage was pretty copious, and attended by considerable exhaustion, but on each occasion it speedily ceased after the administration of opium and the acetate of lead. Moderate tenderness over the abdomen existed in this case, but no tympanites. Costiveness existed throughout the disease in this case, and laxatives were not ventured upon except in the two instances referred to. In the other case, copious bloody evacuations also occurred on two occasions, which ceased speedily after the exhibition of enemas of morphia and tannin. They were attended by considerable prostration. The dejections at other times were thin and yellow. No abdominal distension or tympanites existed in this case, but extreme tenderness, especially in the right iliac region.

The dejections were passed in bed, more or less frequently in *six* cases of *Tyhoid,* (*two* in private practice and *four* in hospital,) and in *four* cases of *Typhus,* (all in hospital.) Of the *Typhoid* cases marked by this event, *two* were *fatal;* and in but *one* of the *fatal* cases of *Typhus* is this event stated to have occurred.

Evacuations in bed may be involuntary from paralysis or relaxation of the sphincter muscle ; they may arise from unconsciousness, an unconscious act of volition, if this expression be allowable ; or they may be due to indifference. On examining the histories of the cases in which this event is noted, I cannot discover that it is to be explained, in either instance, by the first of the causes just mentioned. It did not occur under circumstances of muscular prostration in which this explanation is admissible. In *two* instances it occurred in connection with a comatose condition, in which the second explanation would perhaps apply. In the remaining cases, it was apparently owing to mental indifference. The patients did not appear to appreciate the impropriety of the act, or have any concern for the consequences ; although they were easily roused, and manifested in their replies to questions more or less intelligence. Nor were they annoyed by the contact of excrement with their persons. In *two* of the cases the delirium was active. In none of the other cases, excluding the cases of coma, was somnolency a marked symptom, but in all more or less, delirium was present. In several of the cases, the patients passed evacuations in bed only occasionally, and in two or three instances, only once or twice during the continuance of the disease.

It was found practicable to prevent this accident many times by carefully watching patients, asking them frequently if they did not desire to evacuate the bowels, and occasionally placing them on the defecating chair, even if they expressed no disposition to have a dejection.

Tympanites. This symptom was considered present only in those cases in which there was obvious distension of the abdomen, as well as resonance on percussion. This signification should be defined, since it is stated that, by French writers, the term (or its synonym *meteorism*) is applied to all cases in which resonance is present, whether the abdomen appear distended or not.

Typhoid. Cases in private practice. In *ten* cases, nothing is stated on this point. In the remaining *ten* cases, *tympanites* existed in *three.* Of these *three* cases, it was moderate in degree in *two*, in *one* case existing only on one day, and it was extreme in *one*, which was a fatal case.

Cases in Hospital. The histories of all the *eighteen* cases contain information on this point. *Tympanites* was present in *twelve* cases. It was moderate in all cases save *one*, and was considerable in the latter case. *Typhus.* In the single case in *private* practice, *tympanites* was *not* present. In the *twelve hospital cases*, (the histories of all of which contain information on this point,) *tympanites* was present in *eight.* Of these cases it was moderate in degree in *three*, *slight* in *four*, and in *one* case the degree is not stated. Adding together all the cases of *Typhoid* on the one hand, and those of *Typhus* on the other, tympanites thus was present in *sixteen* of the *twenty-eight* cases of the former type in which this symptom was mentioned ; and in *eight* of the *thirteen* cases of *Typhus*, proportions not very far from being equal.

As respects degree, there does not seem to be any ground for distinction between the two types. It would, perhaps, be fairer to compare the *hospital* cases of *Typhoid* and *Typhus*, excluding the cases in *private* practice, since all the cases in the latter group, save two, were of the former type. In this view, tympanites occurred in a ratio exactly equal in the two types, viz., 12–18 of the cases of *Typhoid*, and 8–12 of the cases of *Typhus*, i. e., in both 4–6. These results are not what I had anticipated. I had supposed this symptom was considerably more frequent in its occurrence in the cases of *Typhoid* than in those of *Typhus.*

I know not how to explain the comparative infrequency of this symptom in the cases in private practice, except by reference to the fact which was adduced in explanation of the greater frequency of diarrhœa in the latter group of cases. The inquiry arises, what connection has *tympanites* with *diarrhœa?* With reference to this inquiry, I have examined the cases in which tympanites was present, in order to ascertain in how many of these cases diarrhœa co-existed. In the *four* cases in private practice in which tympanites was present, more or less diarrhœa existed in all. In the *Typhoid hospital* cases, diarrhœa co-existed with tympanites in *eight*, and tympanites was present without diarrhœa in *four.* In the *eight* cases of *Typhus* in which tympanites existed, in *all* diarrhœa did *not* co-exist. In one case it is noted that the discharges were thin and yellow, but not too frequent.

These results are curious. In so far as these cases afford data for statistical inferences, it would seem that, in the *Typhoid* type, tympanites, in the majority of cases, is accompanied by diarrhœa, but that the former is present without the latter in all cases of *Typhus!* Of course the number of observations is much too limited to authorize such an induction ; nevertheless, the contrast is too striking to be considered wholly fortuitous.

With respect to the concurrence of tympanites and diarrhœa, it should be added, what will suggest itself to the reader as a corollary of the above facts, that diarrhœa, in both *Typhoid* and *Typhus*, but (according to the above data) oftener in the latter, is present without tympanites. This symptom was present in all the *fatal* cases of *Typhoid*, save *one ;* and in *each* of the fatal cases of *Typhus*, save *one.* Of the *Typhoid* cases, it was extreme in *one* case, moderate in *two* cases, and the degree is not stated in the remaining *three* cases in which the symptom was present. Of the cases of *Typhus*, it was moderate in one case, and the degree not stated in the other case in which the symptom was present.

Abdominal tenderness. Typhoid. In *two* of the histories of the cases in *private* practice, there is no allusion to tenderness on pressure over the abdomen. In the remaining *eleven* (*Typhoid*) cases, more or less tenderness was present in *eight.* The tenderness was considerable in degree in *one* case, and either moderate or slight in the remainder (*seven*) cases. Of these cases, the tenderness was either confined to, or more marked in the *right iliac* region in *four* cases, and in the other cases the situation is not stated. In the *Hospital Typhoid* cases, information is contained on this point in the histories of all. Of the *eighteen* cases, more or less *tenderness* was present in *eleven.* The tenderness was either moderate or slight in all but *three* cases. It is noted as especially marked in the *right iliac* regnoi in *two* cases, and in *both iliac regions* in *four* cases.

Typhus. Slight tenderness existed in the single case of *Typhus* in *private* practice. Of the Hospital cases of *Typhus*, information on this point is contained in all the histories. Of the *twelve* cases, tenderness existed in *five.* In all it was slight in degree. The situation of the tenderness is not noted except in one case. In this case, it existed around the umbilicus ; it was present at the early part of the disease, and disappeared during the febrile career. Bringing the two types into comparison as respects this symptom, it was present in *nineteen* of *twenty-eight* cases of *Typhoid*, and in *six* of *thirteen* cases of *Typhus*, showing a considerably larger proportion in the former.

In order to ascertain if there exist any constancy of connection between this symptom and that last considered, viz., tympanites, I have examined the histories of all the cases in which tenderness existed, and enumerated those in which tympanites co-existed. Tenderness with tympanites existed in *ten* cases of *Typhoid,* (*three* in private practice and *seven* in hospital,) and in *four* cases of *Typhus.* In other words, tympanites did not co-exist in *ten* of the cases of *Typhoid* in which tenderness was present, and in *ten* of the cases of *Typhus* in which tenderness existed, tympanites was absent.

On comparing, now, the number of cases in which tenderness was present in both types, with the number of cases in which tympanites existed, it is obvious, not only that tenderness exists without tympanites in a certain proportion of cases, but that tympanites is present without tenderness in a certain proportion of cases. Thus there exists no relation of dependency between these two symptoms, since either may be present without the other.

It remains to inquire respecting the connection of tenderness with diarrhœa. Of the *Typhoid* cases in which tenderness was present, diarrhœa co-existed in *ten,* (*five* in private practice and *five* in hospital.) Tenderness was present without diarrhœa in *nine* cases, (*three* in private practice and *six* in hospital.) Of the cases of *Typhus,* tenderness co-existed with diarrhœa in *two.* Tenderness was present without diarrhœa in *four* cases. Diarrhœa existed without tenderness in *four* cases of *Typhoid,* and in *two* cases *of Typhus.*

These results show that the two symptoms, *tenderness* and *diarrhœa,* are not connected by any kind of mutual dependency; and if they spring from the same cause or causes, circumstances may occasion the development of either symptom to the exclusion of the other. In the *fatal Typhoid* cases, tenderness was present in *four* cases, it was not present in *two* cases, and its presence or absence was not stated in *one* case. It was present in each of the *three* fatal cases of *Typhus.* It was considerable in degree in two of the cases of *Typhoid,* moderate in one case, and the degree is not stated in the history of one case. It was moderate in degree in all the cases of *Typhus.*

Gurgling. By gurgling, I mean a *sound,* or a sensation appreciated by the *touch,* or both, when pressure is made over the abdomen, more especially in one or both of the iliac regions. Of the cases of *Typhoid,* this symptom was present in *twelve,* (*four* in the *private* and *eight* in the hospital cases.) Its absence was noted in *two* cases, and in the remainder, nothing is said on this point. In most of the latter it was undoubtedly absent at the time the daily examinations of records were made. Of the cases of *Typhus*, this symptom was present in *seven*, and in all the other cases nothing is recorded on the point. *Gurgling* was associated with *tenderness on pressure*, *tympanites*, and *diarrhœa*, as follows :—with *tenderness on pressure* in *nine* cases of *Typhoid* and in *two* cases of *Typhus ;* with *tympanites* in *eight* cases of *Typhoid*, and in *three* cases of *Typhus ;* with diarrhœa in *six* cases of *Typhoid*, and in *three* cases of *Typhus.* These enumerations suffice to show that there does not exist any uniformity of association of this symptom with the three symptoms just mentioned, either individually or collectively.

In the *fatal cases of Typhoid* nothing is stated relative to this symptom in *five ;* it was present in the *two* remaining cases. Of the *fatal cases of Typhus*, it was present in *one* case, and nothing is stated in the *two* remaining cases.

It will have been observed, that in the foregoing consideration of abdominal symptoms, the cases of *doubtful type* have been excluded. The facts with respect to the presence or absence of these symptoms in these cases, and the relations of the symptoms to each other, are exhibited in the following tabular arrangement of the *hospital cases of doubtful type :*

	Case 1.	Case 2.	Case 3.	Case 4. [fatal.]	Case 5.	Case 6.	Case 7.	Case 8.
Tenderness.	absent	absent	present	present	absent	not stated	present	present.
Tympanites.	present	absent	present	absent	absent	present	present	not stated.
Gurgling.	present	present	present	present	not stated	not stated	not stated	not stated.
Costiveness.	present	not stated	present	present	present	not stated	not stated	not stated.
Diarrhœa.	absent	absent	absent	absent	absent	absent	absent	absent.

SECTION SIXTH.

Cutaneous Eruptions. The cutaneous eruptions incident to Continued Fever furnish, agreeably to the views of some distinguished observers, striking traits of distinction between the two types denominated *Typhus* and *Typhoid.* I shall, therefore, study the eruptions in the cases grouped after difference in type, separately, and compare the two types as respects the results. It should, however, be premised that in arranging the individual cases into the divisions of *Typhus* and *Typhoid*, considerable importance was attached to the characters, &c., of the eruption.

Typhoid. The characters, etc., which are said to distinguish what is called the *Typhoid eruption* are as follows:—It is generally limited to the chest and abdomen, but occasionally extends to the extremities. It may be copious, particularly over the chest and abdomen, but often it is the reverse, the spots being few in number. The eruption is of a rose red color, [rose spots, *taches roses,*] the spots are oval, appearing somewhat elevated, the redness momentarily disappearing on pressure.

In the histories of the *Typhoid* cases in which an eruption was present, the appearances, etc., were generally described, but in some instances, it is simply stated that it was marked by the *Typhoid* characteristics. I may fairly assume that in all cases in which variations from these characteristics were present they were noted, and that when the presence of the eruption is stated without special description, it exhibited the distinctive characters above mentioned.

A rose eruption was present in *nine* of the *twelve* cases in *private* practice, and in *fourteen* of the *eighteen hospital* cases, i. e., in *twenty-three* of *thirty* cases. In all the cases in which it was not stated as present, the fact of its absence was stated. It was present in a degree to be called copious in *five* cases in *private* practice, and in *two hospital* cases, i. e., in *seven* cases. In the other cases the number of spots varied from four or five to fifty. In one case only were they so few as four or five. In one case there were only five or six. In one case there were only ten. In all the others there were over fifteen. The eruption extended to the upper and lower extremities in *three private,* and in *one* of the hospital cases, in all *four.* It extended to the face in *one* of the *private* cases, and was associated with erythena of the face in that case.

The date of the development of the eruption can be ascertained in only a few of the cases. In many of the cases the disease had commenced several days before they came under observation, and the eruption was apparent from the first. In *six* cases in which the histories afford information on this point, the dates were respectively as follows:—In *one,* the *second* day after taking to the bed: In *one,* the *seventh* day: In *one,* the *fourth* day: In *one,* the *third* day: In *one,* the *fifth* day: In *one,* the *second* day. The *three* first of these cases occurred in *private* practice, the *three* last in *hospital.* These few cases suffice to show that the interval between the time that patients take to the bed, and the appearance of the eruption, is by no means uniform.

Data for determining the duration of the eruption are furnished in only *five* cases. In these cases it continued as follows:—In *one* case, *six* or *seven* days: In *one*, *twelve* days: In *one*, *eight* days: In *one*, *six* days, up to the day before the decease of the patient: In *one*, *ten* days. The duration, thus, in so far as these few observations enable us to judge, is far from being uniform. The only variations from the distinctive traits of the *Typhoid eruption*, which have been mentioned, were as follows:—In *one* case it was noted that in some of the spots the redness did not disappear on pressure. This was the only deviation from the typhoid characteristics in that case. In *one* case, some of the spots were vesicular, the contents of the vesicles being subsequently absorbed.

The size of the spots is not given in the history of any case. It is stated, however, in some of the cases, that the spots were of different sizes.

Of the *two fatal* cases of *Typhoid* in private practice, the eruption was present and copious in *one* case, and absent in the *other* case.

Of the *four* fatal *hospital Typhoid* cases, the eruption was present in *two*, and absent in *two*. It was not copious in either of the cases in which it was present. *Sudamina*, or miliary vesicles were not carefully looked for at the examinations of the patients. Their presence is only noted in a single case in the *Typhoid* group. In this case they were observed, on the fourteenth day, on the epigastrium, the patient having perspired profusely on that day. They were gone on the following day. It is very probable that they may have been present in other cases in which they were not noticed.

A *petechial* eruption was observed in *one* of the cases in the *Typhoid* group. The ecchymoses were not numerous, but sparingly scattered over the abdomen and lower extremities. The rose eruption was not present in this case. The case proved fatal, and the petechial spots were observed on the cadaver.

Typhus. The characters which are said to distinguish the *Typhus* eruption are as follows:—The spots are smaller in size than in *Typhoid*; orbicular, not oval; not elevated; redness not disappearing readily on pressure; of a darker red or dusky hue. They are more frequently numerous, and extend oftener to the extremities.

Of the *thirteen* cases of *Typhus* in my collection, an eruption was present in every case. The eruption presented in all the distinguishing traits above mentioned, except that in *one* case some of the spots appeared slightly elevated. This case presented, thus, a combination of the eruptions of both types. The color was somewhat livid in *two* cases. It had a pink hue in *one* case. In *eleven* of the cases the eruption was copious. In *two* cases it was imperfectly developed. It extended over the extremities, more or less, in *eleven* cases. In the *two* cases in which it was imperfectly developed, the disease proved fatal, in *one* case on the *fourth*, and in the *other* case on the *thirteenth* day. In the remaining fatal case in this group, the eruption was copious. The date of the development of the eruption, and its duration, are determinable in still fewer instances than in the *Typhoid* group. In *one* case it appeared the second day after the patient took to his bed. In another case it did not become developed until the *eighth* day. It continued six or seven days in *one* case, and five or six days in another case. In the histories of the remaining cases the data for determining these points are insufficient. A *petechial* eruption was present in *one* case, appearing on the *fourth* day after admission. The spots were observed on the lower extremities, and were of the size of the head of a pin. This patient had sloughing of the nates. The disease did not prove fatal.

Sudamina are not noted to have been present in any of the cases in the *Typhus* group. As remarked of the *Typhoid* cases, it is not improbable that they may have been present in some instances and escaped notice, since care was not taken to examine for this form of eruption.

On comparing the two groups as respects the foregoing results, it will be perceived that, with few and slight exceptional circumstances, the rules of discrimination which were enumerated, in so far as the present collection of cases is concerned, are sustained. I may add that this conclusion is unexpected, my impression having been that the exceptional circumstances would be found to be more numerous and striking.

It remains to submit the facts with regard to eruptions in the cases of *doubtful type*. Of the *eight hospital* cases of *doubtful type*, an eruption was present in *three*. In *one* of these cases *two* or *three rose-spots* only were observed. This was a fatal case. In *one* case the eruption was small and faint, and confined to the inferior part of the chest on either side, the redness disappearing on pressure. In the *third* case, the eruption appeared on the sixth day, and was copious, extending over the upper and lower extremities. It was of two kinds. The larger number of spots appeared somewhat elevated, and the redness disappeared on pressure. Other spots were not elevated, and the redness did not disappear on pressure. The eruption continued five or six days, gradually fading until it disappeared, which is the usual course with the eruptions in Continued Fever.

In the remaining *five* cases no eruption was present. In the *single* case of *doubtful type* in *private* practice, an eruption had existed prior to the case coming under my observation, but the characters were not ascertained. This was a fatal case. In the other fatal case two or three rose-spots were observed, and no autopsy was had in this case.

No inquiries occur to me suggesting comparisons of the eruption with other associated symptoms in individual cases.

SECTION SEVENTH.

Symptoms referable to the Respiratory Apparatus. Cough. Expectoration. Pain in Chest. Pneumonitis. Aberrations of Respiratory Movements. Epistaxis. Singultus.

Cough. More or less cough was present in *ten* cases of those in the *Typhoid* group, *five* being in *private* practice, and *five* in *hospital.* Of these *ten* cases, the cough was moderate, or slight, in *seven,* and a prominent symptom in *three.* It was present only during the early part of the febrile career in *three* cases. It was protracted into convalescence in *one* case. It occurred in connection with *pneumonitis* in *two* cases. In one of these cases the existence of that complication is demonstrated by recorded physical signs; in the other case physical signs are not stated, but the existence of the complication is evidenced by the rational symptoms.

Of the *Typhus* group more or less cough was present in *eleven* cases. Of these *eleven* cases, the cough was moderate, or slight, in *four,* and a prominent symptom in *seven.* It was present only during the early part of the febrile career, in a single case. It was protracted into convalescence in *two* cases. It occurred in connection with pneumonitis in *five* cases, in *three* of which that complication is determined by recorded physical signs; in the other *two* cases it is evidenced by rational symptoms.

The periods in the career of the fever of which the pneumonitis commenced in the cases of either type, are not given in the analysis preilminary to this Report, save in one instance, and the importance of determining this point is perhaps not sufficient to compensate for the trouble of re-perusing the histories of the cases in which this complication existed. In the case just excepted, the pneumonitis became developed twenty-seven days after the admission of the patient. Convalescence, which was apparently postponed by the occurrence of this secondary affection, was not pronounced until the thirty-second day after his admission. The case referred to was in the *Typhoid* group.

It is not improbable that in some cases, in both groups, slight cough may have occasionally been present and escaped notice. In most of the cases in which the histories do not show that it was present, nothing is stated on the point, but it is not probable, and indeed hardly possible, that such an omission could have occurred in any instance in which this was in any degree a prominent symptom. In *six* cases of *Typhoid*, and *six* of *Typhus*, more or less expectoration is stated to have accompanied the cough, but I am not sure that in all the other cases in which cough was present, it was wholly unattended by expectoration. In *two* cases of *Typhoid*, and *three* of *Typhus*, the expectoration is stated to have been muco-purulent. As respects the existence of pneumonitis, I am not satisfied that this complication did not exist, to some extent, in other cases than those in which it is now practicable to determine it to have been present. In general, physical exploration was not practised in cases in which the symptoms did not point to the existence of this complication; and it is certain that pneumonic inflammation may be present without being denoted by rational symptoms, even cough and expectoration being absent.

The foregoing results, however, suffice to show that cough and expectoration are symptoms incident to Continued Fever, without forming a necessary element of the disease; and that pneumonitis becomes developed in a certain ratio of cases, the average frequency of both, in so far as the present collection of cases is concerned, being indeterminate. But these results, imperfect as they may be, are interesting and striking, when considered and compared in the different types. It will be perceived that while cough was recorded present in only *one-third* of the cases of *Typhoid*, it was recorded present in *eleven-thirteenths* of the cases of *Typhus*. Admitting that these results are not perfectly exact, it is fair to conclude that it was present in a much larger proportion of cases of the latter, than of the former type. Moreover, it was a prominent symptom in only *one fifth* of the cases of *Typhoid* in which it was present, and in more than *one-half* of the cases of *Typhus*. Pneumonitis was present in but *two* of the *thirty* cases of *Typhoid*, and in *five* of the *thirteen* cases of *Typhus*. These comparisons show a liability to pulmonary affections, considerably greater in the *Typhus* than in the *Typhoid* type of Continued Fever.

Of the *six fatal* cases of *Typhoid*, the presence of cough is not mentioned in the histories of *five*, and in the single remaining case, it was not a prominent symptom.

Of the *three fatal* cases of *Typhus*, it was present in all. It was a prominent symptom in only one case; it was present only in the commencement of the disease, in one case, and it was moderate in degree in the remaining case. It would thus seem that the presence of cough, and its prominency as a symptom, need not affect unfavorably the prognosis in either type of Continud Fever.

Pain in the Chest. This symptom is recorded present in but *one* case of *Typhoid*, and in this case it accompanied the development of pneumonitis on the twenty-seventh day after the admission of the patient. It was recorded present in *one* case of *Typhus*, occurring in connection with cough at the early part of the febrile career, and situated beneath the sternum.

Aberrations of Respiration. Aberrations of respiration, more or less in degree, and differing in kind, appear in the histories of *nine* of the *thirty* cases of *Typhoid*, (*four* in *private* practice, and *five* in *hospital*,) and in *ten* of the *thirteen* cases of *Typhus*, thus showing a great preponderance in the latter type of the disease. In *eight* of the histories of the cases in the *Typhoid* group, it is recorded that the respiration was unaffected, and nothing is stated on this subject in the histories of *thirteen*. In the histories of the *three* cases of *Typhus* in which some aberrations of respiration were not noted, nothing is stated on the subject. The varieties of disorder in the respiratory movements, and the number of cases in which they were noted, are as follows:—*increased frequency* in *three* cases of *Typhoid*, and in *eight* cases of *Typhus; diminished frequency* in *three* cases of *Typhoid*, and in none of *Typhus; sighing respiration*, in *two* cases of *Typhoid*, and in *three* cases of *Typhus; panting on slight exertion* in *one* case of *Typhoid*, and *one* case of *Typhus*; *stertor* in *two* cases of *Typhus; catching* (inspiration shortened and quickened) in *one* case of *Typhoid*, and in *four* cases of *Typhus; irregularity in rhythm* in *three* cases of *Typhus; sibilant nasal rale*, in *four* cases of *Typhoid*, and in *two* cases of *Typhus; dilation of the alæ nasi*, in *one* case of *Typhoid* and in *four* cases of *Typhus*. These variations were, of course, more or less associated in different cases. It should also be stated that the aberrations of respiration occurring toward the close of life, in the cases which proved fatal, are not included, since they are, under such circumstances, incident to the mode of dying, and do not, strictly speaking, belong to the career o thef disease.

It is of some interest to determine the relative frequency of these several kinds of aberration in cases of the two forms of Continued Fever; but a more interesting point of inquiry relates to their connection with the ulterior morbid conditions upon which they are dependent. Some of the symptoms that have been enumerated, are expressions of disorder of the nervous system, others are occasioned by the state of the pulmonary organs, and some may involve either or both. To bring the results of the analytical investigation to bear on this point of inquiry, a collection of cases might be divided into two groups, in the one group pulmonary disease being present as a complication of the fever, and in the other group this complication being absent. The two groups should then be studied and compared with respect to the presence of the several symptoms just mentioned. Symptoms present without the evidence, physical and rational, of pulmonary disease, it would be fair to refer to a nervous origin; on the other hand, those present in cases in which a pulmonary complication existed, might be due to it, or they might, still, originate in the nervous system; but if they exclusively existed in the group distinguished by the presence of pulmonary complication, they should be considered incidental to the latter. This interrogation of results is but imperfectly available in the present investigation, because, from neglect of physical explorations, it cannot be positively determined in what cases pneumonic complication was absent. I will, however, under distinct heads, institute, so far as practicable, a comparison in the manner pointed out, regretting that the data are not more satisfactory.

Increased Frequency of Respiration. In *four* of the cases of *Typhus* in which this variety of aberration was present, *pneumonitis* undoubtedly existed. Of the remaining *four* cases of *Typhus* characterized by this symptom, in all cough co-existed. In *one* case the cough was accompanied with sanguinolent expectoration. In another case the respirations were much accelerated (56 per minute the maximum) with labor, and panting on exertion. In this case pneumonitis may be suspected to exist. In another case, muco-purulent expectoration accompanied the cough, and occasionally the expectoration was streaked with blood. Dilation of the *alæ nasi* also co-existed. Either pneumonitis or bronchitis must have existed in this case as a complication. In the remaining case, the cough was a prominent symptom. Thus, *all* the *Typhus* cases attended with accelerated breathing, were complicated with pulmonary disease.

Of the *three* cases of *Typhoid* in which the respiratory movements were accelerated, the recorded data are quite insufficient for determining the presence or absence of pulmonary disease in one case. Nothing is stated with respect to cough. The respiration was catching, with dilation of the alæ nasi; coma and stertor succeeding. In another of the cases nothing is stated relative to cough. The respiration in this case was moderately accelerated, the maximum being 24. In the remaining case *pneumonitis* was evidenced by cough and rusty expectoration.

In conclusion, then, with respect to this symptom, in *all* but *two* of the *eleven* cases in which it was present in both types, it was accompanied by evidences of pulmonary complication; and in the two excepted cases the data are too defective for any definite inferences. I should state that in speaking of acceleration of the respiration as a symptom, I mean a degree of acceleration sufficient to attract attention. The histories of all the cases do not embrace an enumeration of the respiratory movements. When these did not appear to be increased they were not always enumerated. Hence, it may be that a slight increase above the average normal frequency may have existed in some instances when it was not sufficiently apparent to excite notice.

Diminished Frequency of Respiration. In none of the *three* cases of *Typhoid* in which this symptom was present, does the history afford evidence of pulmonary complication. In *one*, it is stated that no cough existed, and in the other *two* cases, nothing is recorded on that point. In the first case the respiration is noted to be somewhat slower and deeper than in health. Cerebral nervous symptoms, in this case, were not prominent. In one of the remaining cases cerebral symptoms were prominent, eventuating in coma. This case proved fatal. In the other case, the respiration was but slightly retarded, and more heavy than in health. In this case, about the average of cerebral symptoms were present. In so far as these few and imperfect observations go, diminished frequency of respiration is not to be attributed to morbid conditions of the lungs; and this accords with the view of this symptom generally entertained.

Sighing. By this I mean occasional, or frequent sighing, not a continuously suspirious respiration. Of the *two* cases of *Typhoid* in which this symptom was noticed, in *one*, cough was present at the early part, but in a trifling degree. In the other case cough did not exist. Of the *three* cases of *Typhus* in which the symptom was present, in *one*, cough and sanguinolent expectoration was present; in *one*, slight cough had existed, but did not continue up to the time that the case came under observation; and the remaining case was complicated with pneumonitis. If the character of this symptom be taken in connection with these results, it can hardly be doubted that it is due to a morbid condition of the nervous system. It is to be borne in mind that the co-existence of pulmonary disease in a certain proportion of cases, does by no means establish any connection between a symptom present in such cases, but also present in other cases in which pulmonary disease is absent. To prove such a connection the symptom should be present exclusively in cases characterized by pulmonary disease. I have been accustomed to regard frequent sighing as of bad omen in fever. This idea is, in some measure, sustained by the fact that in *two* of the *five* cases in which the symptom was noted, the disease proved fatal.

Panting on slight exertion. This was noted in *one* of the above cases of *Typhoid* in which *sighing* occurred, unconnected with any marked symptoms of pulmonary complication. In the other case cough and other pulmonary symptoms were prominent, and it is highly probable that pneumonitis existed.

Stertor. In both of the cases of Typhus in which this symptom occurred other than as an immediate forerunner of death, pulmonary symptoms were prominent, pneumonitis existing in one case, if not in the other. This, however, obviously, is not a symptom due directly to the condition of the lungs.

Inspiration shortened and quickened. In the single case of *Typhoid* in which this aberration is noted, the existence of secondary disease of the lungs is indeterminate from the history, no pulmonary symptoms being recorded, while cerebral symptoms were prominent. In the *four* cases of Typhus cough and other pulmonary symptoms were prominent, and in *three* of the cases pneumonitis was marked. In *two* of the *five* cases presenting this aberration, the disease proved fatal. This symptom I have been accustomed to regard as an expression of a morbid condition seated at the nervous centre, rather than in the pulmonary organs. The correctness of this view is not disproved, although it is in no wise sustained by the above results.

Irregularity. Of the *three* cases of *Typhus* in which this symptom was noted, in *one* case the history affords no evidences of the existence of pulmonary complication. In the *two* other cases pneumonitis co-existed. This, like the preceding aberration, is generally attributed to a nervous origin ; and the fact that, in one of the three cases in which it was present pulmonary disease did not co-exist, suffices to show that it is not necessarily dependent on the latter.

Dilation of the alæ nasi. In the single *Typhoid* case in which this was noted, the data are insufficient to determine either the presence or absence of pulmonary disease. In the *three Typhus* cases, cough existed in all. It was prominent in *one*, and the expectoration was streaked with blood; it was moderate in *one;* and in the *two* remaining cases, *pneumonitis* existed.

Sibilant nasal rale. This symptom has no special reference either to the nervous system, or pulmonary organs, but is probably dependent on the state of the nasal passages.

The foregoing examination of cases with a view to determine the connection subsisting between the several aberrations of the respiratory movements, and the secondary affections of the pulmonary organs occurring in Continued Fever, may not seem to furnish results sufficiently numerous and explicit to compensate for the labor which it has cost. I should perhaps hardly deem them deserving of the space which they occupy in the report, were it not that, possibly, they may serve to suggest the application of a similar method of comparison in a larger series of cases with the facts relating to the pulmonary system more satisfactorily recorded.

The reader may be surprised that in connection with the subjects embraced in this Section, I do not adduce the appearances presented on dissection of the pulmonary organs, in the instances in which the disease proved fatal. The reason for this omission will appear in the Section devoted to the Autopsical Observations, where it will be perceived that the post obit histories of the fatal cases are very imperfect as respects the pulmonary organs.

Epistaxis. Epistaxis was noted in *eight* of the cases of *Typhoid* (*three* in *private* practice and *five* in *hospital*). In *three* cases it is noted that this symptom did not occur. In the remainder nothing is said either of its absence or presence. In all the above eight cases the hemorrhage occurred from the nostrils, more or less in quantity. In a few cases (*three*) not included in this enumeration, it was observed that sputa detached from the posterior nares were tinged with blood. This may have occurred in other instances and have escaped observation. It is also not impossible that epistaxis may have occurred in some of the cases not under observation from the commencement of the disease, the fact not being ascertained, although, generally, if not invariably, pains were taken to inquire whether this symptom entered into the previous history. In most of the cases in which nothing is stated relative to this point in the history, it is fair to presume the symptom did not occur. Here, as in other instances, the importance of recording negative facts was not sufficiently borne in mind. As respects the period in the career of the Fever when epistaxis was observed, in *all* but *three* instances this is stated in the preliminary analysis. In these three cases it is simply stated that it occurred early. In the other cases the periods were respectively as follows :—In *one* case, on the 8th and 10th days; in *one*, on the 8th day; in *one*, daily, up to the 7th day, and sometimes profusely; in *one*, on the 10th day; and in *one*, on the 26th day. The ratio in which this symptom was observed in many cases is very nearly the same as in the 303 cases of Typhoid Fever analyzed by Dr. Jackson. Of the quantity of blood which escaped, and the precise number of times the hemorrhage took place, the histories do not contain information. Pains were not taken to ascertain the former more especially. Generally speaking, it was slight, and I am quite certain that no appreciable effect upon the progress of the disease was produced by it. In none of the cases in which epistaxis occurred, did the disease prove fatal; and *two* of the *three* cases in which it was noted that this symptom did not occur, were fatal cases. Of the cases of the *Typhus* group, epistaxis was noted in but *two.* In *one* of these it occurred several times early in the febrile career; in the other case it occurred once early, and once afterward. In one of the cases the disease proved fatal. In none of the cases of Typhus is it noted that the sputa from the posterior nares were tinged with blood. In *three* of the cases in this group the absence of this symptom is noted. In the other cases nothing is stated on the subject. Comparing the foregoing results in the two groups, this symptom occurs oftener in *Typhoid* than in *Typhus,* the ratio being a little more than one in four of the former, and one in six and a half in the latter type.

Singultus. This symptom was observed in *two* cases, *one* of *Typhoid,* and the *other* of *doubtful* type. In the former case it was a troublesome symptom for several days. The disease proved fatal, but this symptom ceased toward the close of life. It was unaccompanied by involuntary movements of the voluntary muscles. In the other case, it occurred on the day after the admission of the patient, four grains of opium having been administered the night previous. The respiration was, at the same time, somewhat labored, and the inspiration shortened and quickened. This case became complicated with pneumonitis.

In the foregoing enumerations and comparisons with respect to the symptoms referable to the respiratory system, it will here be observed that the cases of *doubtful* type (with the single exception in the preceding paragraph) have not been included. It is probably not of much importance to present the facts in the histories of these cases belonging to this class, but since it has been done hitherto, it will render the report defective to omit them, and as the readiest mode of accomplishing the object they are arranged in the following tabular form:—

1	2	3	4	5	6	7	8	9
Cough prominent. Accelerated respiration. Probably Pueumonitis	Respiration slightly accelerated. Nothing stated as to Cough, etc.	Slight Cough continued into convalescence. No aberration of respiration stated.	No Cough or expectoration. Respiration accelerated *alæ nasi* dilate	Moderate Cough. Expectoration streaked with blood Short and catching respiration FATAL.	Slight Cough. Respiration unaffected.	Cough and expectoration. Respiration labored and catching Physical signs of Pneumonitis. Epistaxis several times.	No Cough. Respiration unaffected. Epistaxis several times.	Slight Cough and substenal pains. Respiration normal. Sputa from posterior nares tinged with blood.

SECTION EIGHTH.

Symptoms referable to the Circulation. Pulse, Capillary Congestion.

The points of interest in this section, relate, for the most part, to the pulse, and the circulation in the capillary vessels of the cutaneous surface. As respects the pulse, the question arises, how shall the facts contained in the histories be presented? In frequency, and other characters of the pulse, no two of the cases are precisely alike, and, therefore, they cannot be enumerated in classes. Moreover, in individual cases, the pulse was in no instance entirely uniform throughout the career of the disease, and frequently varied, not only daily, but at different periods of the same day. In order to exhibit, as concisely and comprehensively as practicable, the facts which the histories contain, the readiest and best method is to arrange them in a tabular form. I shall adopt this method, assigning a distinct table, respectively, to the cases of *Typhoid*, *Typhus*, and those of *doubtful type*. These tables will, in general, embrace all the facts with respect to the circulation contained in the histories. To this there are few exceptions, arising from an omission to include all the details in the preliminary analysis. In the private cases, it will be observed, that the facts are expressed in general terms, with less regard to details and precision. This arises from the symptoms in these cases not having been noted daily at the bed side, as has been before stated. In the hospital cases, usually, the frequency and character of the pulse, etc., were daily recorded, but to this rule there were occasional exceptions. Generally speaking, so soon as convalescence was declared, this particularity in recording was no longer continued. In the majority of cases the pulse, etc., as well as other classes of symptoms, were only noted once daily, generally in the forenoon. The histories, therefore, do not embrace all the variations which may have occurred during the day, except in some instances. When this is the case, in the tables which follow, the letters A. M. and P. M., are attached to the figures denoting the frequency of the pulse. When these letters are not attached, it is understood that observations were made only in the forenoon; and the numbers following each other, without these letters, express the frequency of the pulse on different days.

TABLE EXHIBITING THE PULSE, ETC., IN TWELVE CASES OF TYPHOID IN PRIVATE PRACTICE.

1	2	3	4	5	6	7	8	9	10	11	12
In early part of disease, 80 in the morning, and at evening from 90 to 100. Larger than normal, but not full nor hard. For several days before convalescence, normal, and no exacerbations,	From 80 to 90 at A. M., and from 90 to 100 at P. M.	Moderate febrile movement. Details not stated.	Moderate febrile movement. Details not stated.	On the 10th day (the 1st of observation) 100, feeble and intermitting Became more developed, and regular, and less frequent. Two diurnal exacerbations.	Ranged from 100 to 120 in early part of febrile career. In latter part from 80 to 90.	In early part, 120. Gradually abated during latter part. Moderate exacerbations in the afternoon.	Ranged from 88 to 95. Moderate exacerbations.	Ranged from 86 to 92. No exacerbations. Pulse well developed.	At first to 100, and rose to 120, being below 110 only on one day. Evening exacerbation well developed and at first large and strong. *Fatal case.*	Ranged from 80 to 100. Distinct even'g exacerbations. Capillary congestion.	Pulse 6th day, (first of observation) 120. Rose to 130 140, and 150, and became extinct. *Fatal case.*

TABLE EXHIBITING THE PULSE, ETC., IN EIGHTEEN HOSPITAL CASES OF TYPHOID.

1	2	3	4	5	6	7	8	9
Ranged from 80 to 90. No regular exacerbations	120, and well developed at first. Third day 160 A. M., small and feeble; and at P. M. too rapid and small to be enumerated. Moderate capillary congestion of the surface. *Fatal* third day after admission.	Ranged for several days, from 88 to 96; then from 100 to 120 and became feeble. *Fatal* fifteen days after admission, and twenty-six days after attack.	At first, 125. Third day, 10 . Fifth day, 96. Sixth day, 80. Capillary congestion confin'd to the face. Mean frequency, 102 1-4.	120. 120 small. 80. 96. 98. *note below. Mean frequency, 96 4-5.	84. 96. 96. 72. 86. 72. Mean frequency, 84 1-3.	108 well developed. Fourth day 120, and rather feeble. 108, moderately developed. 120, well developed. 112. 128. 108. 100. 84. Even'g exacerbations. Capillary congestion. Mean frequency, 109 8-9	128 well developed, thrilling. 120 thrilling. 120 less thrill'g. 120 moderately thrilling. 124 thrilling. 104 soft. 100 soft. 92 soft. 100 swell. 4. Mean frequency, 109 1-5.	Third day 88, and somewhat thrilling. 86 soft. 96 somewhat thrilling. 104 thrilling. 84. 80. 72. Mean frequency, 87 1-7.

* The numbers in this case and the subsequent cases, denote the frequency at the successive notations, taking no notice of some days, in some of the cases in which the frequency was not noted.

TABULAR VIEW OF EIGHTEEN HOSPITAL CASES—(CONTINUED.)

10	11	12	13	14	15	16	17	18
Second day,92. Third day, 94. Fourth day,112. Fifth day, not noted. *Fatal* sixth day after admission.	104 tolerably developed. 93. 120, thrilling. 100. 92. 100, 112. 100. 108. 100. 96. Capillary congestion confined to face. Mean frequency, 102 3-11.	100. 92. Somewhat thrilling. 104 soft. 104. 92. 120. 96. 104. 100. 104. 108. 96 soft. 66 somewhat thrilling. 88. 96. 104 feeble, and somewhat thrilling. 110 and quite feeble. 100 feeble and unequal in force 112 thrilling. 96. Not accelerated. Mean frequency, 100 6-10.	72 well developed. 72. 72. 72. 96. 72 small. 76. Capillary congestion of surface, continued to time of convalescence. Mean frequency,76.	112 small and rather thrilling. 108 small and feeble. (Haemorrhage from bowels on this day.) 108 more developed. 108 well developed. 104 soft and feeble (second haemorrhage.) 96 small and feeble. 100 tolerably developed. 120 tolerably developed. 96. 72. 72. Slight capillary congestion confined to face. Mean frequency 99 7-11.	120 well developed, and thrilling. 100 moderately developed. 100 well developed. 108 tolerably developed. 120 soft. 132 soft. 160 exceedingly feeble and irregular. *Fatal* following morning, tenth day after admission and attack.	112 small and feeble. 120 full and strong. 64. 76. Capillary congestion confined to face. Mean frequency, 93.	84, tolerably developed. 92, developed, but soft. 88. 80. 84. 80. Moderate capillary congestion of surface. Mean frequency, 84 1-3.	120. 116, soft and feeble. 120, quite small and feeble. 88. 92. 100, rather small. 120 (Parotitis) 100. 100. 100 very small. 80. 84. Considerable capillary congestion of the surface. Mean frequency,101 4-6.

TABLE EXHIBITING THE PULSE, ETC., IN TWELVE HOSPITAL CASES OF TYPHUS.

1	2	3	4	5	6	7	8	9	10	11	12
Very small and irregular. Second day more developed. Third day developed and but little accelerated. 4th day, 96. 5th " 80. 6th " 80. 7th " 56. Capillary congestion of surface, somewhat livid.	96 well developed. Progressively increased to 100, and 125, and became small. Day before decease 120 Capillary congestion of surface. *Fatal* eighth day after admission, and thirteen after attack.	120 soft weak, and occasionally intermitting. 120 soft and compressible. At P.M,120 120 at A.M. 120 at P.M. 120 tolerably developed and regular. 104. 108 A. M. 108 P. M. 110 A. M. 104 P. M. 100. 104. 100. 108. 100. Capillary congestion of surface. Mean frequency at A. M. 110 4-13.	100 A. M. 120 P. M., (well developed.) 120 small and feeble. 130 A M. 136 P. M. 120 A. M. 120 P. M. 120 A. M. 130 P. M. (thrilling.) 64 A. M. 120 P. M. 64 A. M. 76 P. M. 94 A. M. 96 P. M. 100 A. M, 100 P. M. 88 A. M. 88 P. M. 80. 68. Mean frequency at A. M. 95 2-3.	120 well developed. 140. 120. 122. 120. 108. 120. 112. 100. 106. 108. 140. 108. Well developed thro' whole career. Capillary congestion of surface. Mean frequency, 118	120 small, and feeble. 120 very small. 112 very small. 120 scarcely appreciable. 120 small. 100 small. Not accelerated. The smallness in this case was owing to an anomalous division of the radial artery, a small branch only passing in the usual direction, not discovered until the ninth day. Mean frequency, 115 1-3.	112 small. 120 small. 108 quite small. 100 more developed. 88 quite small. 72 small and feeble. 82 exceedingly small and feeble. Impulse of heart not appreciable. Pulse quite irregular. 76 less irregular. 64 occasionally intermitting. More developed. Capillary congestion of surface. Mean frequency, 88.	Not appreciable when the patient entered. Second day 144, small and feeble. Capillary congestion of face and hands. *Fatal* on the third day of admission, and seventh after attack.	First day not accelerated. 100 well developed. 80. 96 soft. 120 small and soft. 120. 100 well developed. Not accelerated. Capillary congestion. of surface. Mean frequency, 102 1-3.	120 soft and feeble. 128 soft and feeble. Impulse of heart not appreciable 140 very feeble. 128 more developed. 112. 108. 96. 100. 100. Capillary congestion of face and extremities. Mean frequency, 114 6-9.	125 soft and compressible. 120. 120. 108 well developed. 104. 100. 108. Capillary congestion of face. Mean frequency, 112 1-7.	108. 100 well developed. 108 soft and feeble. 100 soft 90 feeble. 88 76. Capillary congestion of surface. Mean frequency, 95 5-7.

TABLE EXHIBITING THE PULSE, ETC., IN EIGHT HOSPITAL CASES OF DOUBTFUL TYPE.

1	2	3	4	5	6	7	8
104 soft and compressible. 80. 52 and somewhat irregular. Capillary congestion of surface. Mean frequency, 78 2-3.	104 rather small and feeble. 120. 108. 116. 116. 100. 80. Capillary congestion of surface. Mean frequency, 106 2-7.	120 soft and compressible. 112 small and feeble. 96 well developed 96. 88. Capillary congestion of face. Mean frequency, 104 2-5.	92. 84 somewhat thrilling. 100. 100 thrilling. 108. 104. 112. 120. 112. 108. 120 thrilling. 112 quite small 120 small and thrilling. 46 thrilling. *Fatal* 23 days after admission. Complicated with Parotiditis. Capillary congestion of face. Mean frequency. 109 1-13.	128 full and thrilling. 120 compressible jerking. 84. 72. Capillary congestions of face. Mean frequency, 101.	130 extremely small and feeble. 108 more developed. 88. 84. 96. Mean frequency, 101 1-5.	Maximum 120. Not noted daily. Moderate capillary congestion of face and extremities.	96 well developed 96. 96. 92. 90. Capillary congestion of face, and upper extremeties Mean frequency, 94.

The foregoing tables suffice to show, in the first place, that there exists considerable diversity in the frequency, and other characters of the pulse, both in different cases of Continued Fever, and in different periods of the febrile career in individual cases.

It is probably never the case that the pulse remains wholly unaffected throughout the febrile career. A near approximation to this is apparently presented in the table of Typhoid hospital cases, No. 13. In this case the pulse was but 72, except on one day, when it was 96—the mean frequency being 76. This patient, however, had been confined to the bed eleven days before entering the hospital, during which time it is altogether probable that the pulse had been more or less accelerated.

The numbers given in the tables do not furnish a perfectly accurate representation of the condition of the pulse, since, generally, observations were made but once daily, and various transient causes are liable to affect the pulse at the time of the daily examination. To render this portion of the histories complete, the pulse should have been enumerated in each case several times daily, and the mean result taken, together with the variations.

The variations which in most of the cases are apparent on different days, in part, doubtless, denote fluctuations incident to the progress of the disease; but they are also, in part, to be referred to extrinsic circumstances affecting the condition of the patient, among which are to be included the influences of remedies.

On comparing the frequency of the pulse in the two types, *Typhus* and *Typhoid*, it is found that, it is considerably greater in the majority of cases of the former than of the latter. The average mean in *thirteen* of the hospital cases of *Typhoid* is 95 7-13 ; while in *nine* cases of *Typhus*, the average is 105 4-9. The fatal cases are excluded from this calculation. Greater frequency of the pulse, then, characterizes Typhus, a result which accords with the observations of others. Instances of a high maximum are oftener presented in *Typhus*. In the table of *Typhus* cases, exclusive of the cases that proved fatal, the pulse had a maximum of 140 in two cases in which recovery took place, and it was 136 in another case. In the cases of Typhoid, on the other hand, the highest maximum was 128, and this was attained in but a single case. Two of the fatal cases presented a greater frequency, 160.

An examination of the tables will also show that instances of feebleness, and irregularity of the pulse occurred oftener in cases of *Typhus* than in *Typhoid*.

In general terms, I should say, that the frequency of the pulse is a pretty good criterion of the severity of the disease. This opinion, however, is not based on a careful examination of all the cases in order to compare the pulse, as regards frequency, with the grade of severity. This would require not a small degree of labor. But if this be a general rule, it is not without exceptions, for, in some of the cases in my collection, the pulse numbered 120, when, in other particulars the disease was mild, and milder than in other cases in which the frequency of the pulse was less. It did not exceed 120, the day before the decease in one of the fatal cases, and in another, in so far as data were preserved, it fell below this number. In a case which has recently fallen under my observation, not included in this collection, the pulse, two days before the fatal issue, was but slightly accelerated. There can be no doubt if the pulse exceed 120, except for a transient period, that the case is of dangerous severity ; and the danger increases in more than a geometrical ratio if it rise above this point.

A deception occurred in one of the cases of *Typhus* (No. 6) which demands a passing notice. The pulse had been daily noted as "small," or "very small," and, on one day, "scarcely appreciable." This symptom, although in other respects the disease did not appear to be of a severe grade of intensity, was regarded as denoting danger, and stimulants were directed more freely than would have been the case had not the pulse presented this character. On the ninth day, I discovered that there was a bifurcation of the radial artery, one branch pursuing the usual course, and the other winding over the radius, the former being much the smaller of the two. From the position of the bed, I had always examined the pulse in the arm in which this peculiarity existed. The same anomaly I have met with in several other instances. The neglect to discover it in this instance affecting materially the treatment, may serve to suggest the importance of looking for a similar explanation in cases in which smallness and feebleness of the pulse are marked.

It will be observed on reference to the tables, that a few cases presented a minimum in the number of the pulse considerably below the normal average. In No. 16 of the hospital *Typhoid* cases, the pulse, on one day, was noted 64. In No. 1 of the *Typhus* cases, it was, on one day, 52. In No. 1 of the cases of *doubtful type*, it was on one day 52. In all these cases this reduction in the number of the pulse occurred at the commencement of convalescence, and was of transient duration. In none of these cases was there reason to suppose that the pulse, in health, was habitually slower than the average. Marked slowness of the pulse, then, occasionally characterizes convalescence in Continued Fever. Oftener the pulse continued somewhat accelerated after convalescence, by other symptoms, was fully declared. Generally speaking, a return to a normal state, as respects frequency and other characters of the pulse, is one of the best criterions of a favorable termination of the disease.

With respect to *exacerbations of fever*, in a large proportion of the cases, observations having been made but once daily, the histories are silent. In some instances, however, it is noted that exacerbations were present, and in a few instances the data suffice to show that they were absent. The only conclusion to be drawn from these limited facts is, that they may, or may not occur during the career of Continued Fever. To determine the probability of their occurrence, statistics much more extensive than the present collection of cases furnishes, are requisite.

The presence of capillary congestion of the face, extremities, or entire surface of the body is noted, in the tables, among the symptoms referable to the circulatory system. This symptom, it will be perceived, is present in a much larger proportion of the cases of *Typhus* than in those of the *Typhoid* type. The pathological significancy of this symptom has already been commented on (section third.) On examination of the pulse in the cases in which this symptom is noted, in the tables, the fact already stated (page 32d) may be verified, viz., that it does not depend on causes affecting the general circulation, i. e., the circulation through the heart and arteries, since it does not sustain any relation to symptoms denoting that the forces carrying on the general circulation are compromised in a special manner. In other words, in the cases in which capillary congestion is noted, the pulse does not invariably denote an enfeebled or disordered circulation, but, on the contrary, in some of the cases in which the capillary congestion was marked, the arterial circulation was less disturbed, as indicated by the pulse, than in other cases in which that symptom was not present. The occasion of the capillary congestion is, therefore, obviously inherent in the capillary system, and, perhaps, in the blood itself. In the remarks on this point in section third, it was stated that pulmonary congestions are said to be more liable to occur in *Typhus* than in the *Typhoid* type of Continued Fever. This has been confirmed by the results developed in the preceding section. A comparison of these results with the greater frequency of capillary congestion of the surface in cases of *Typhus*, favors the supposition that the same condition of the capillary vessels, or of the blood, may affect internal organs ; and that the greater frequency of pneumonitis, in *Typhus*, is in this way susceptible of explanation.

SECTION NINTH.

Symptoms (Exclusive of Eruptions) referable to the Skin.

The Symptoms (exclusive of Eruptions) referable to the skin, may be distributed into those relating to *sweating* and *moisture*, to *dryness*, to *temperature*, to *congestive redness*, to *Erysipelas*, and to *gangrene*. The phenomena belonging to these several classes are commingled, more or less, in individual cases; and, hence, they are to be considered, not only under separate heads, but as they are presented together in combination, succession, or alternation, during the progress of fever. I will proceed, first, to inquiries respecting each of the above divisions distinctly, taking them up respectively in the order enumerated.

Sweating and moisture. In a considerable number of the cases of both types, sweating, more or less free or profuse, occurred either once, or oftener, during the febrile career. It was so noted in fourteen of *twenty-seven* cases of Typhoid, in which the histories contain information on this point. Of these *fourteen* cases, *seven* were in *private* practice, and *seven* were in *hospital.* These cases are exclusive of the instances in which sweating occurred either coincident with, or shortly before convalescence, or as a precursor of death. In a certain number of cases the termination of the disease, either fatally, or in convalescence, was characterized by this event, but as occurring under these circumstances it will be more appropriately considered in a subsequent section. In *eight* of the *fourteen* cases, sweating occurred more than once during the febrile career; in *seven* of the *eight* cases it occured several times, and in the remaining case twice. The periods of the disease at which it occurred, were varied; in fact, among these fourteen cases, each day of the febrile career would probably be represented. Perspiration in a lesser degree, constituting what was distinguished in the histories as *moisture* of the skin, occurred, in *ten* of the *twenty-seven* cases of Typhoid, viz.: in *four* of the cases in *private* practice, and in *six* of those in *hospital.* In these cases the skin was either moist almost constantly during the febrile career, or, generally, the moisture was present more or less frequently for hours, or days, in the course of the disease. It will be perceived, by the above enumerations, that sweating occurred in a larger proportion of the cases of *Typhoid,* than merely moisture of the skin—a curious fact, worthy of passing notice with a view to its possibly being found to possess some significancy in connection with other facts.

Sweating occurred in a proportion of the *Typhoid* cases in *private* practice larger then in those in *hospital,* being present in seven-ninths of the former, and in only four-ninths of the latter group. As this disparity is not susceptible of explanation by reference to difference in circumstances in the two groups, it probably shows that, in the proportion of instances in which this symptom is present in Typhoid Fever different collections of cases should not be expected to exhibit uniformity.

Of the *twelve* hospital cases of *Typhus,* sweating was noted in the histories of *five.* It occurred several times in *one* of these cases; once only, in *one* case; and *twice* in *two* cases. *Moisture* of the skin was noted in but *two* cases. Thus, as regards sweating, results do not show a marked difference, in the two types, in the frequency of its occurrence; but simply *moisture* of the skin was less frequently observed in *Typhus* than in *Typhoid,* occurring in the ratio of 1 to 6 in the former, and 1 to 3 in the latter.

Of the *eight* cases of *doubtful type* sweating was noted in *four.* Moisture is noted in a single case; and in one case the history is deficient in information respecting the symptoms referable to the skin.

Adding together the cases of the three groups above mentioned in which the condition of the skin was noted, the sum total is 46, and of this number sweating occurred in 23, i. e., in precisely one-half.

The sweating was not in all cases equal in degree; pains, however, were not taken to determine differences in this particular with exactness, which, it is obvious, would be difficult, if not impracticable. The terms *free, profuse, copious,* and *bathed in sweat,* were frequently employed in the histories to express the quantity of secreted fluid present on the surface, but in other histories it is simply stated that sweating had occurred, or was obobserved at the time of the examination. In *one* case of typhus it is stated that the hands were corrugated from the profuseness of perspiration. This has been styled the *washer-woman's sweat,* and has been thought to be a fatal sign. In the case in which it was noted the disease ended favorably. In *one* case of Typhus, in which sweating occurred twice; on the first occasion it was quite profuse, and limited to the forehead and face ; on the second occasion, it was copious on the face, and extended, but in a less degree, to the chest and upper extremeties. As a general remark the sweating during the career of the Fever was not attended, or immediately followed by any marked abatement of the severity of the disease, but, on the contrary, judged by the symptoms, the effect was the reverse. This may be enumerated as the rule, and I am not aware that there were any exceptions to it. No exceptions were noted in the preliminary analysis of the cases, and in several instances it is stated that this event was not connected with any improvement in the symptoms.

The foregoing results, it is believed, conflict with the ideas generally entertained by practitioners respecting the frequency with which sweating occurs in Continued Fever, and the degree and the kind of importance to be attached to it. Perhaps this is one of the many instances which might be cited to illustrate the influence of theoretical or preconceived notions in frustrating the lessons of experience, unless that experience be based on observations recorded and analyzed. It is a current belief that sweating generally proves salutary when it occurs in Continued Fever—a belief originating, probably, in the ancient humoral hypothesis of a specific morbid material being eliminated through the cutaneous secretions ; and apparently sustained by the instances in which this symptom is regarded as critical from its occurring concurrently with convalescence. Its correctness, however, is disproved by the facts which numerical investigations disclose, showing the large number of cases in which the event occurs, and, at different periods of the disease, without affecting, apparently, in a favorable manner, its character or progress; showing, moreover, as will be seen hereafter, that it occurs during the febrile career, without improvement, in a larger proportion of cases, than that in which it signalizes convalescence. If this view of the subject be correct, the propriety of pursuing measures, during the career of Continued Fever, to produce sweating is more than questionable.

It would be interesting to ascertain upon what ulterior conditions, or circircumstances, appertaining to Continued Fever, sweating is dependent. With reference to this point of inquiry, it would be important to establish any relations subsisting between this event, and other phenomena belongto the natural history of the disease. I have examined the histories of several of the cases characterized by sweating, in order to discover a clue to some connection of this kind, but without success. It occurs, not only at different periods of the disease, but apparently irrespective of the circulation, the temperature of the skin, and other symptoms. The antecedent morbid condition, or conditions, upon which it depends, and the circumstances involved in its production, are unknown. All that can be said of its causation is, that it is an event incident to the progress of Continued Fever, belonging in the category with other incidental events, such as acceleration of the pulse, coating of the tongue, somnolency, etc.—all of which are not more rationally explicable than it.

This fact should be mentioned, viz: in the majority of the instances in which weating occurred, it took place during the night, or, commenced during the night, and was continued into the day. It is not noted in any of the histories that it was preceded by exacerbation of fever, but this may have been true of some cases without having been observed, the examination of the patients, and records of symptoms, being made, for the most part, in the morning, and the occurrence of exacerbations, therefore, not always ascertained.

It remains to inquire respecting the occurrence of sweating and moisture in the cases which ended fatally. In *nine* of the fatal cases included in the above enumerations, sweating was noted in *four*, a proportion, it will be observed, not far from that in which it is found in the cases terminating in recovery. Hence, this event has no particular bearing on the prognosis. Of these *nine* cases, *moisture* was noted in *three*, which is also not very far from the proportion which it bears in the cases which recovered. It is to be borne in mind, that in these enumerations, as well as in those which have preceded, sweating and moisture at, or toward the close of the career of the disease, are not included.

Dryness. The skin, if perfectly normal, is neither moist nor dry, but presents a medium state, conveying to the touch a sensation which is best described by applying to it, figuratively, the term *mellow.* It has been seen, that in Continued Fever, deviations from this condition are apt to occur in consequence of increased secretion from the sudorifarous glands, causing moisture, or sweating.

Deviations of an opposite kind may occur, in consequence of diminished secretion from these glands. The surface then communicates to the touch a sensation of dryness. Dryness of the skin, more or less, occurs in the great majority of the cases of Continued Fever. Of the *thirty* cases of *Typhoid*, I find but *four* in which it appears from the histories that this condition of the skin was entirely absent during the febrile career. This was true of but *one* of the *twelve* hospital cases of *Typhus.* In several of the cases, however, the records do not afford positive information on this point—viz: in *ten* cases of *Typhoid*, and *one* case of *Typhus.* This defect in the histories of these cases probably was owing to not always appreciating the importance of noting the presence of a symptom so familiar and almost universal as this. Had the skin remained moist, or mellow, throughout the disease, in any of the cases, I am quite sure the fact would have been embraced in the histories.

The occurrence of dryness was very variable, as respects the period or periods of the disease when it was observed; its duration; and also its relation to other conditions of the external surface. In five cases, it appeared early, and persisted through the greater part of the febrile career. In other cases, it was not observed until the disease had made more or less progress ; and, generally, it was present at intervals, alternating with other cutaneous symptoms. It was so irregular in these particulars, as also in its degree of intensity, that it would be difficult to condense, by means of classification, the facts contained in the histories of all the cases. The brief and very general account contained in the foregoing paragraph, will suffice for the historical portion of this division of the symptoms referable to the skin.

Dryness of the surface would seem to be a more *consistent* event in continued fever than moisture or sweating, since observations show that all the glandular secretions of the organism are diminished in this disease. It is, however, as little susceptible of rational explanation as the opposite conditions already considered. Like most of the phenomenal manifestations of fever, it is so connected with the primary, essential, morbid changes, in which the disease consists, that while these remain undiscovered, we can hardly hope to penetrate completely its causation. We can only study it in its various relations.

As a symptom, it obtains so invariably in continued fever of both types, and also in other affections, that it is of small or no value in diagnosis, and has very little pathological significance.

Temperature. Heat of the skin existed, more or less, in most of the cases. In a few instances, however, the temperature did not appear to be increased beyond what belongs to a state of health. The heat was associated with moisture, and, more rarely, with sweating ; but generally, dryness co-existed. In some cases the heat continued pretty steadily throughout the disease, and in other cases it occurred at intervals, and was of variable duration. That peculiar pungent or acrid heat called *Calor Mordicans*, which is regarded by some writers as characteristic of the *Typhus* type, was noted in but *two* cases, one of the *Typhus*, and the other of *doubtful* type.

The increase of temperature was of different gradations, from a slight elevation above the natural warmth, to a degree to which, in a hyperbolical sense, the term *burning* might be applied. Coldness of the surface was not noted in a single case.

Of temperature, as of dryness, it may be said, and for similar reasons, that the conditions of the skin in this respect are of little account in diagnosis, and have no special pathological significance.

When associated with dryness, heat may in part be explained by the diminished evaporation. It is not, however, wholly accounted for in this way, but it involves a positive increase in the disengagement of caloric, as is evidenced by the fact that it co-exists in some instances with moisture, and even sweating. To inquire concerning the rationale of its production under these circumstances, would be to travel beyond the limits of the facts before us.

As a general remark, applicable to the divisions previously considered, as well as to the subject of temperature, it may be said that in estimating the severity of the disease, and the prognosis, by the symptoms referable to the skin, no very definite or positive inferences are to be drawn from any of the deviations from the state of health, considered by themselves ; but a return or approximation to normal conditions, other things being equal, must, of course, be regarded as favorable.

Gangrene. Gangrenous ulceration of the skin occurred in but a single case, which was of the *Typhus* type. It appeared on the tenth day after the admission of the patient into hospital. The parts affected were the Sacrum, and a small space over the Scapula. In the latter situation the affection was slight, and, of short continuance. Over the Sacrum a considerable eschar followed, leaving a large and troublesome ulceration, which did not heal for several weeks after convalescence was pronounced. The patient, finally, completely recovered. This case in other respects did not exhibit unusual severity.

In a very few instances (three or four, as near as can be determined by recollection) some erythema over the Sacrum, or nates, was observed which disappeared on the application of astringent washes, and the use of air cushions, without proceeding further.

It has been noticed that in this disease, blistered surfaces are apt to degenerate into troublesome ulcerations. The opportunities afforded in the present collection of cases for verifying this point were extremely limited, vesication very seldom entering into the treatment. In the few instances in which blisters were applied, no such result followed.

Erysipelas did not occur in any case during the febrile career. It became developed in one case, succeeding Parotitis, after convalescence was established. It was situated on the face, and was treated by the application of ice to the part affected. It was of short duration, and did not attain a great degree of severity.

Having thus considered, under distinct heads, the several divisions of the symptoms referable to the skin, it remains to give some account of these symptoms as they were associated in individual cases. In many of the cases all the varieties of the foregoing cutaneous phenomena were presented, either in combination, succession, or alternation, during the career of the disease. Not only were variations observed in the same case on succeeding days, but uniformity frequently did not exist at different periods of the same day. Since the laws regulating these fluctuations are but little understood, and very little pathological or practical importance belongs to them in the present state of knowledge, they are chiefly interesting as comprising a part of the natural history of the disease. The readiest method of exhibiting them as contained in the histories of all the cases, would be to arrange them in a tabular form, in the mode adopted in other sections. This I have done for convenience of examination and reference in writing the foregoing remarks. It will, however, answer every purpose, and economize space, as well as the patience of the reader, to select a few cases from those of each type, as illustrations, giving the symptoms referable to the skin which were noted on each day during the career of the Fever. This plan will therefore be adopted.

Typhoid.

Case 1.—1st day, skin cool ; 2d, warm and moist ; 3d, cool, and bathed in perspiration ; 4th, warm and moist ; 5th, moist ; 6th, perspiring freely ; 7th, perspiring profusely ; 8th, warm and mellow ; 9th, warm ; 10th, warm aud dry ; 11th, perspiring copiously ; 12th, warm and moist ; 13th, warm and mellow ; 14th, perspiring profusely ; 15th, warm and moist ; 16th, warm and mellow ; 17th, cool and moist ; 18th, cool and moist.

Case 2.—1st day, skin hot and dry ; 2d, dry and warm ; 3d, warm ; 4th, warm and mellow ; 5th, warm and dry ; 6th, warm and mellow. Deep congestive redness of face and extremities.

Case 3.—1st day, skin rather hot, perspired at night ; 2d, warm and mellow ; 3d, hot and dry ; 4th, warm and moist, and at night profuse perspiration ; 5th, rather hot and dry ; 6th, perspired at a. m., and profusely at p. m.; 7th, hot and bathed in perspiration, dry before decease, this case proving fatal.

Case 4.—1st day, skin hot and dry ; 2d, warm and moist ; 3d, hot and dry ; 4th, cool ; 5th, warm and mellow ; 6th, warm ; 7th, warm and dry ; 8th, moist ; 9th, warm and dry ; 10th, warm ; 11th, warm and dry ; 12th, warm and dry ; 13th, warm ; 14th, warm and dry ; 15th, moist, 16th, warm and dry ; 17th, warm and dry ; 18th, warm and mellow. Congestive redness of the face.

Typhus.

Case 1.—1st day, skin hot, and heat acrid ; 2d, cool ; 3d, normal temperature and dry; 4th, cool ; 5th, cool ; 6th, warm and very dry ; 7th, mellow ; 8th, cool ; 9th, copious perspiration, confined to forehead and face ; 10th, warm and dry ; 11th copious perspiration on face, extending in a moderate degree to the upper extremities, sudamina, deep congestive redness, somewhat livid.

Case 2.—1st day, warm and moist ; 2d, dry, and temperature increased ; 3d, cool ; 4th, warm and mellow; 5th, mellow, temperature somewhat increased ; 6th, cool and moist ; 7th, cool and moist. Dingy congestion of face and extremities, at first considerable, gradually diminishing, but not disappearing entirely until after convalescence was pronounced.

Case 3.—2d day, cool and dry; 3d, noted that skin presented no change. Congestive redness. Fatal on the third day.

Case 4.—1st day, cool ; 2d, cool ; 3d, warm and dry; 4th, warm, and at p. m., hot ; 5th, moist ; 6th, moist and cool ; 7th, warm, and at p. m., moist.

Doubtful Type.

Case 1.—1st day, hot and dry; 2d, hot and dry; 3d, warm and dry; 4th, warm ; 5th, dry and rather hot ; 6th, dry and rather hot ; 7th, face covered with perspiration, and remainder of the body dry; 8th, hot and dry ; 9th, hot and dry ; 10th, hot ; 11th, dry, but less burning heat ; 12th dry, not hot. Some congestive redness of face. This case proved fatal.

Case 2.—1st day, hot and dry ; 2d, dry, acrid heat, (calor mordicans;) 3d, warm ; 4th, moist, perspired freely during the night ; 5th, moist. Congestive redness of face. Parotiditis and erysipelas occurred, after convalesence was pronounced in this case.

The enumeration of days in the foregoing cases is dated from the time the patients came under observation.

SECTION TENTH.

Symptoms referable to the Genito-urinary System.

The facts, contained in the histories, relating to the subject of this section, are quite insignificant. In the great majority of the cases, the quantity and other characters appertaining to the urine were unobserved. This was in consequence of the difficulty of preserving, in a separate vessel, the evacuation of each patient, and retaining it for my inspection: a difficulty by no means insurmountable, but which, to my regret, was not persistingly overcome, the attempt having been commenced, but abandoned. The present collection of cases furnishes no data for determining what deviations from the conditions of health ordinarily obtain in continued fever. In a few instances, some unusual symptoms referable to the urinary system presented themselves, attracting notice, and were consequently noted. They are as follows :—Copious lithatic deposit was observed in *two Typhoid* cases, occuring in *private practice.* In these cases this deposit took place during the whole course of the disease.

In the history of *one* case of *Typhus*, it is noted occasionally, during the progress of the disease, that the urine was high colored, and without sediment, but two days before convalescence was pronounced, the secretion became more abundant, and deposited a copious lateritious sediment.

In *one* case of *Typhoid* in *private practice*, there was, for a time, inability to void urine, requiring the catheter. The inability in this case did not proceed from unconsciousness, the patient experiencing fully the desire to urinate, but being unable to accomplish the act. This was early in the disease, and may, perhaps, have been owing to anodyne remedies, which, as is well known, occasionally are attended with such an effect.

In another *Typhoid* case in *private practice*, there was some difficulty in evacuating the bladder, for a day or two, which, perhaps, was due to the same cause.

In several cases, it was noted that the urine was passed in bed. This was owing to the same mental indifference which accounts for the evacuation of the bowels in bed; and the two events generally co-existed.

These few and meagre observations are all that I have to report.

SECTION ELEVENTH.

Duration of the disease. Circumstances attending Convalescence. Sequelæ. Mode of dying. Fatality.

Duration.—In order to determine, accurately, the duration of the febrile career, it is necessary that the periods of its commencement and termination should be fixed with precision. It has been seen, in a previous section, that it is not easy to decide, in all cases, upon the exact time when the access, or forming stage closes, and the fever begins. The circumstance selected to denote the period of commencement, in the present analysis, is, confessedly, wanting that degree of precision which could be desired. It is, in a measure, arbitrary, and is adopted only because, in the opinion of the writer, it supplies, in the majority of cases, a criterion as accurate and as readily available, as any that may be fixed upon. The circumstance referred to, is a sense of disease or debility sufficient to lead the patient to desire to take to the bed. This marks the date of the fever proper, or of the second stage if the access be included among the stages of the disease.

Now, what shall serve as the index to the day of convalescence? The rule adopted by Louis, is to consider the day of convalescence that on which the patient begins to take some solid food. In following this rule, however, it is plain that he determines the fact of convalescence, prior to the patient's taking food, from other circumstances. That is to say, when the patient is distinctly convalescent he allows solid food for the first time, and the latter is, therefore, merely an indication of his decision, not, necessarily, a criterion of the fact of convalescence. The applicability of this rule will involve the withholding of solid food prior to convalescence, on the one hand, and that it should be invariably given so soon as convalescence is pronounced, on the other hand, both of which provisions may not be in accordance with the course pursued by all practitioners. Notwithstanding these objections, I am not aware that a better criterion has been suggested. But instead of following the rule laid down by Louis, it appears to me preferable to do what it would seem Louis virtually does, viz: decide on the day of convalescence from an ensemble of circumstances. If the febrile movement, as determined by the heat of skin, acceleration of pulse, etc., have ceased, clearness of the intellect returning, with refreshing sleep, and the patient has a desire for, and relish of food, he may be pronounced convalescent. Some one or more of the above conditions, in some instances, may be wanting, and, still, the other circumstances be such that convalescence may properly be declared. Judgment, and some experience are requisite to decide correctly; and, with every qualification on the part of the observer, it will not infrequently be a matter of some doubt as to the particular day which should limit the termination of the febrile career. Different practitioners would not fix upon the same day in all cases, owing to differences in the mode of estimating the circumstances upon which the opinion is based. Perfect exactitude and entire uniformity, in short, as respects this point, are not practicable; and yet, sensible physicians, in the majority of instances, will act with sufficient correctness for all practical purposes. The exercise of judgment in a similar way, would answer equally well in designating the commencement of the disease, without re-course to an arbitrary event like that which the writer has adopted. But there is this material difference in the two instances, viz., it very frequently happens that cases do not come under observation at their commencement, and hence, it is desirable to fix upon something which will serve to mark the date at a period when we have nothing to rely upon but the history given by the patient or friends. Under these circumstances we can almost always ascertain at what time the patient took to the bed, when we are able to obtain very little information of the symptoms, and history in other respects. On the other hand, a patient does not pass from our observation usually, until he is considered convalescent; hence, there is not the same necessity, or advantage, in determining the time of convalescence by reference to an arbitrary standard.

It was an ancient belief, which is not yet entirely obsolete, that there is an intrinsic tendency in Continued Fever to terminate after the lapse of a certain numbers of days, dating from the commencement of the disease. That the doctrine of *critical days*, as these days were termed, originated in a fancied virtue inherent in the days, or numbers by which they were designated, is evident from the foregoing considerations. The difficulty of deciding the duration, to a day, in a large proportion of cases, renders it impracticable either to establish, or disprove, by observation, that doctrine. This, however, has been attempted within a few years. Dr. Welch, of Edinburgh, Scotland, enumerated the days in 690 cases, collected from different sources, and he found that, of this number, 470 ended on some of the days considered critical. Subsequently Dr. Davidson, of the same place, analyzed a collection of cases, considerably less in number, with reference to this point, and arrived at different results. Statistics by different persons, with an equal allowance of good faith, may be expected thus to differ. The termination, as well as invasion of the disease being seldom so well defined but that one of two or three days might be selected, a disposition to credit or discredit the doctrine of critical days would afford a bias which would hardly fail to determine the preference of critical or non-critical days according to the pre-conceptions of the observer.

In determining the duration of the disease, then, in the cases under investigation, rigorous accuracy is not claimed, but only an approximation thereto, sufficient for all practical purposes exclusive of the doctrine of critical days.

In about one half of the hospital cases (17 of 38) the histories do not contain a definite statement of the commencement of the disease, i. e., of the time the patients had been confined to the bed prior to entering the hospital. In many instances it was impracticable to obtain information on this point, and proper effort was not always made to obtain it. Patients were received at different periods of the disease, and hence, the space of time from the date of their admission to the date of convalescence, is not a fair representation of the duration of the disease. In a considerable number of cases, however, it may be supposed that the differences in the time that had elapsed before entering the hospital would compensate for each other, and, the cases of different groups might be considered uniform in this respect. Hence, the cases of the two types may be compared as regards the duration from the date of admission. The time of convalescence was generally fixed, being determined by so marked an abatement of the symptoms as to denote that the febrile career was at an end. In a few cases, however, this was impracticable, owing to the existence of complications, continuing after the febrile career was ended, symptoms of both being so intermingled, that chronological limits of the latter were not discernible.

Another point of inquiry relates to the time of remaining in hospital, i. e., the number of days, or weeks, from the date of admission, to the date of discharge. Here various causes are operative aside from disease, and the amount of debility remaining after convalescence is established. Some patients are anxious to leave the hospital as soon as possible, and do not remain as long as prudence would dictate; others, having no better asylum, are desirous of staying as long as possible. Still, on the principle of compensation for differences, the cases of the two types may be considered uniform in this particular, and a comparison instituted.

The facts contained in the histories of the cases under examination relating to the foregoing objects of enumeration and comparison, are presented in the following tables :—

TABLE EXHIBITING DURATION IN TWELVE TYPHOID CASES IN PRIVATE PRACTICE.

	1	2	3	4	5	6	7	8	9	10	11	12	
No. of days from time of taking to bed, to date of convalescence.	16	11	about 18	about 21	28	about 15	11	10	14	9 *Fatal.*	5	9 *Fatal.*	Total 149. Mean 14 9-10.

TABLE EXHIBITING DURATION, ETC., IN EIGHTEEN HOSPITAL TYPHOID CASES.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
No. of days from time of taking to bed, to convalescence.					18		18	14						25	31	14		Indeterminate owing to Perotitis.	Total 120. Mean 20.
No. of days from admission to hospital, to date of convalescence.			8	8	12	13	12	13	14	10		15	32*	14	21	6	9		Total 187. Mean 13 5-14.
No. of days from date of convalescence to date of discharge, or date of last record.			11	9	4	9	4	7	5	6		7		30	13		7		Total 135. Mean 10 5-13.
Fatal cases. No. of days from taking to bed.		26														10			
Do. from admission.	4	15									6					10			
Length of time in hospital.	23	15	19	17	16	22	16	20	19	16	6	22		44	34	16	16		Total 258. Mean 19 13-15

* Complicated with pneumonitis.

TABLE EXHIBITING DURATION IN 12 HOSPITAL TYPHUS CASES.

	1	2	3	4	5	6	7	8	9	10	11	12	
No. of days from date of taking to bed to date of convalescence.		*Fatal.* 13th day after invasion.	19	19		9		*Fatal* on the 7th day.	13	14			Total 74 days. Mean 14 4-5.
No. of days from admission to hospital to date of convalescence.	8	*Fatal* 8th day.	12	14	18	9	13	*Fatal* on the 3d day.	13	14	17	10	Total 131. Mean 11 10-11.
No. of days from date of convalescence to dismissal from hospital or date of last record.			16	Complicated with parotitis. 37	5		9		Remain'd in hospital 6 weeks. Transferred to surgical department for eschar on sacrum	16	21	11	Total 115. Mean 16 3-7.
Length of time in hospital.		8	28	51	23		22			30	38	21	Total 221. Mean 27 5-8.

TABLE EXHIBITING DURATION IN EIGHT HOSPITAL CASES OF DOUBTFUL TYPE.

	1	2	3	4	5	6	7	8	
No. of days from time of taking to bed to date of convalescence.	9	12	14			14	9	5	Total 63. Mean 10½.
No. of days from date of admission to hospital to date of convalescence.	6	10		*Fatal* 23rd day, complicated with parotitis.	5	9	9	5	Total 53 Mean 7 4-7
No. of days from date of convalescence to date of discharge from hospital, or of last record.	5	5	17		Parotitis supervened. 35	Parotitis supervened. 27	Remained in hospital. Sister of Charity.	Sister of charity	Total 89. Mean 17 4-5.
Length of time in hospital.	11	15	26		40	36			Total 128. Mean 25 3-5.

The shortest term of duration, as will be perceived by consulting the tables, was *five* days. In *two* cases, *one* being in *private* practice, and *one* among the *hospital* cases of doubtful type, this was the length of the febrile career. The history in each of these cases leaves no doubt as to the fact that the disease was Continued Fever. In both cases the fever was of a very mild grade, but the diagnostic features were unequivocal. In both instances it seemed most rational to attribute the origin of the disease to contagion. There were exceptional cases as respects duration. In no other case did the fever run its course in a less period than *nine* days, and in all but *five* instances, the duration was longer. The maximum of duration was twenty-eight days, the case occurring in private practice. This case was treated homœopathically for ten days before coming under my observation, the patient being kept on rice water for diet.

It will be observed that the average duration of the *Typhoid* cases in *private practice* is considerably less than the average of those of the same type in hospital, 14 9-10 being the mean number of days in the former, and 20 the mean number of days in the latter. I can offer no explanation of this disparity. It should, however, be considered that the cases in hospital in which the criterion for determining the commencement of the disease was ascertained, are few in number—being only six. On comparison of the average duration of the *hospital* cases of *Typhoid*, with that of the cases of *Typhus*, the latter are found to have a shorter career, the mean number of days being 14 4-5, while the mean number of days of the former, as just stated, is 20. This disparity accords with the results of analyses by others.

The disparity is less, if we compare the hospital cases of the two types as respects the duration from the time of admission into hospital to the time of convalescence. The mean number of days of the *Typhoid* cases from the date of entrance to the date of convalescence is 13 5-14, while the mean number of days of the *Typhus* cases is 11 10-11. The probable explanation of this result is, that in cases of *Typhus* the symptoms sooner assume a degree of gravity to lead the patient or friends to seek hospital relief.

Although the career of the disease is shorter in the majority of cases, in *Typhus*, patients are nearly as long in hospital before convalescence, because they enter sooner than in cases of *Typhoid.*

Again, on comparing the hospital cases of the two types as respects the duration from the time of convalescence to the date of the last record, or discharge, the disparity is in favor of the *Typhoid* type, the mean number of days being in the latter 10 5-13, while in the *Typhus* type it is 16 3-7. This result would go to show that the system recovers sooner from the effects of *Typhoid* than *Typhus* fever, or, in other words, it shows that the latter form of fever, although shorter in its career, produces a graver influence on the organism. The length of time in the hospital in cases of the two types, corresponds with the above result, the mean number of days in *Typhoid* being 19 13-15, while in *Typhus* it is 27 5-8.

It remains to notice the duration in the cases ending fatally. Of the *five* fatal cases of *Typhoid* type, the duration of the disease in each was as follows:—after the attack, *nine* days in *two* cases; *twenty-six* days in one case; *ten* days in *one* case. In the other cases the dates of the invasion were not precisely ascertained. The duration after admission into hospital of the latter cases, were as follows:—*three* days in *one* case; *six* days in *one* case. Mean duration of time the cases were under observation, 8 1-5. Of the *three* fatal cases of *Typhus* the duration in each was as follows:—*three* days in *one* case; *thirteen* days in *one* case; *seven* days in *one* case. Mean duration of time these cases were under observation, 6 1-3. The mean period of duration when the disease proved fatal, is considerably greater in the cases of *Typhoid* than in those of *Typhus*, being 13½ in the cases of the former in which the date of the attack was ascertained, and 8 in the cases of the latter type. In so far as these few cases afford data for results, then, *Typhus*, when it proves fatal, runs a shorter career than *Typhoid*, a conclusion which accords with the observations of others.

Of the *two* fatal cases of *doubtful type*, the duration was in *one*, *eight* days, and in the other, *twenty-three* days,

There are several points of inquiry connected with the subject of duration, in addition to those which have been noticed. One of these is the influence of age upon duration; another is the influence of early or late reception into hospital; the effect of seasons is another, etc. The number of cases in this collection is not sufficiently large for enumerations with reference to these questions.

Circumstances attending convalescence. The circumstances attending convalescence are of interest with reference to the pathological inquiry in how far they may be considered to have contributed to the favorable termination of the disease; in other words whether, or not, they are *critical* in their character. Of the *ten Typhoid* cases in *private practice* which terminated favorably, convalescence in *one* case was preceded by profuse perspiration for several nights; and in *one* case it is stated that convalescence was accompanied by profuse perspiration. In *one* case diarrhœa, which had existed moderately during the progress of the disease, was somewhat increased at the time of convalescence. Of the remaining *seven* cases, it is stated in *four* that no evacuations occurred which could be regarded as critical; and in *three* there is nothing stated on the subject. The occurrence of an event which was suspected to be critical, would hardly escape being recorded; and, hence, it is fair to infer that in all the cases except the *three* first mentioned nothing of the kind was observed.

In *five* of the above *ten* cases, convalescence was established by a gradual abatement of symptoms, and the histories of the remaining *five* cases do not furnish data for determining whether the disease ceased suddenly, or not. In the latter group are included the *two* cases in which perspiration occurred at, or near the time of convalescence.

Of the *fourteen Typhoid hospital* cases which terminated favorably, convalescence was accompanied by perspiration in *two*. In *one* of these cases the perspiration was profuse. In *one* case diarrhœa continued, but not increased. In *one* case, the contents of a small abscess on the thigh were discharged on the day preceding that on which convalescence was pronounced. Nothing is stated of any event which might be supposed to be critical in the histories of any of the remaining cases. In *two* cases, the occurrence of convalescence was apparently postponed by the existence of pneumonitis, and in *one* case, the same was due to parotitis.

Of the *ten Hospital* cases of *Typhus* which terminated favorably, convalescence was preceded or accompanied by perspiration, in *four*. In none of the remaining cases does the histories contain aught which could be regarded critical. In *two* cases, pneumonitis co-existed, and continued after the febrile career had ended; and in *one* case, the same was true of parotitis.

Of the *seven* cases of *doubtful type* which ended favorably, convalescence was accompanied by profuse perspiration in *one* case. Pneumonitis existed at the time of convalescence in *one* case.

In the preliminary analysis of the Hospital cases, pains were not taken to ascertain whether the febrile career ended suddenly, or by a gradual abatement of the symptoms.

The above results show a small number of cases in which there are any appreciable circumstances, connected with convalescence, that may be supposed to have contributed to the favorable termination of the disease. The instances in which diarrhœa continued, are hardly entitled to consideration in this point of view. Perspiration, which occured in *nine* of *forty-two* cases, it may at first be supposed, was a critical event. But when it is considered how large is the proportion of cases in which sweating occurs during the career of the disease, prior to its occurrence in connection with convalescence, (viz. in *twenty-three* of *forty-seven,*) there does not seem to be sufficient ground to attribute to it much, if any, agency in determining the favorable termination. From the frequency of its occurrence, irrespective of convalescence, it might, perhaps, be expected to occur at, or near the time of convalescence, in about one-fifth of the number of cases, by the law of probabilities, having no connection with the convalescence beyond that of coincidence in time. Assuming that there does exist some connection, other than this, it would by no means follow that the perspiration contributed to the convalescence. The former may be an effect of the latter, instead of being involved in its causation, or both may be effects of the same favorable change in the morbid actions constituting the disease. To discuss the latter points, would be to engage in speculative inquiries; but, as it seems to me, a comparison of the ratio of the occurrence of perspiration in Continued Fever, without any amelioration of symptoms, with the ratio of its occurrence, at or near the time of convalescence, suffices to disprove the supposition that there exists any connection between these events.

Sequelæ.—Under this heading, I will include occurrences worthy of note, which transpired from the time convalescence was established, up to the periods when the cases passed from observation. The system, after the febrile career, is liable to disorder, or disease, of various kinds, and, at some times and places, it has been observed that particular affections are apt to ensue, showing a predisposition to certain sequelæ derived from the disease through which patients have just passed. No special tendency to subsequent affections characterized the cases in this collection, and, in the great majority of instances, convalescence was not retarded by any untoward event. The occurrences which were noted, are as follows:—

In the group of cases in *private practice*, convalescence was marked by unusual characters in but a single case. In the case referred to, the patient, for several days, exhibited a delirous excitation of ideas, and various delusions, the most prominent of which was, that he had acquired great wealth, that he owned steam boats, &c., and, among other extravagances, he entertained the strange conceit that he had remunerated his medical attendant with a munificent fee! This patient, during the febrile career, did not manifest marked delirium, replying coherently to questions, but he recollected very little that transpired in the course of his illness. The delirum above mentioned became developed after all the other symptoms denoted convalescence, and indeed when he was able to sit up a portion of the day. The delusions suddenly vanished. He said he thought the matter all over, and discovered the fancifulness of the ideas, which had, for a few days, afforded him so much satisfaction. The discovery did not induce any depression, he continued to convalesce rapidly, and has enjoyed excellent health for the two years that have now elapsed since his recovery. May not the delirium, in this case, have been due to an exuberence of that which occasions the pleasurable sensations incident to returning health?

Of the *Hospital Typhoid* cases, in *one* the formation of a small quantity of pus near the rectum occured during convalescence. The parts healed readily after the purulent discharge. In *one*, diarrhœa and indigestion occurred, which were of short duration, and were probably due to imprudence in diet.

In *one*, hysterical paroxisms occurred. In *one*, a submaxillary gland became swelled, but the swelling subsided and disappeared in a few days; and subsequently formation of pus occured on the thigh just below the trochanter, and in the axilla. These abscesses discharged for several days, and the parts then healed, the patient leaving the hospital quite well, thirty days after convalescence was pronounced. In *one*, perspiration occurred for several nights, and on one night slight delirium.

Of the *Hospital* cases of *Typhus*, in *one* the patient seemed dull, and apparently experienced some difficulty in arranging his ideas. In *one* several furunculi on the legs appeared in succession, and, in the same case, during the time of convalescence, the gums were spongy, and bled for a few days. The latter was not the effect of mercurialization. In *one*, a furunculus appeared on the ankle, several days after convalescence, and the patient complained of pains in the loins, which were relieved by the application of a sinapism. In *one*, parotitis followed convalescence, and this was succeeded by erysipelas of the face.

Of the cases of *doubtful type*, in *one*, cough and substernal pain occured, relieved by a blister. In *one*, vomiting, probably occasioned by imprudence in diet. In *one*, considerable febrile movement was observed on one day; and in *one*, parotitis commenced eight days after convalescence was pronounced.

The foregoing list shows nothing like uniformity in the few sequelæ which were noted, nor were any of the subsequent affections of serious import. It is to be borne in mind that the histories, for the most part, embrace only the time elapsing after the cases came under observation, up to the date of the discharge. Most of the patients were lost sight of, after leaving the hospital. In the instances, which are exceptions to this rule, it is not recollected that any have experienced disease up to the present time.

In none of the cases did *relapse* occur. I have never witnessed what might properly be called a relapse, after the career of Continued Fever was ended. A recurrence of febrile movement from persistence of some of the complications of the disease, or supervening affections, has been observed, but not a recapitulation of the phenomena necessary to constitute Continued Fever.

I have not noticed in this connection the instances in which complications and symptoms, developed during the career of the fever, continued, retarding recovery, and modifying the symptoms of convalescence. This was the case with respect to pneumonitis in several cases, and parotitis. Deafness, congestive redness, diarrhœa, coated tongue, tremulousness of the tongue, acceleration of the pulse, etc., were observed in convalescence, as well as during the febile career, but this has been already stated under divisions treating of these affections and symptoms distinctly.

Mode of Dying.—The mode of dying in fatal cases of Continued Fever, is not uniform. I will consider the diversities in this particular, as arranged into two kinds—first, dying by apnœa, and second, by asthenia. Death by apnœa may be occasioned by any cause acting directly to suspend respiration. The cause may be in the respiratory organs, but oftener it is situated at the cerebral centre, destroying the instinctive want of respiration necessary to maintain the involuntary movements involved in that function. Death by asthenia is occasioned by causes acting more directly on the circulatory forces, affecting the *vis nervosa* upon which the contractile property of the heart depends; or depriving the heart of its proper stimulus, the blood, either by diminution of its quantity, or impairment of its quality. These two general modes are not infrequently commingled in fatal cases of Continued Fever. Asthenia may contribute to induce a condition of the cerebral centre, in consequence of which, death occurs from apnœa sooner than it would have resulted from the former mode alone. Both modes are so conjoined in some cases, that it is not easy to decide which really determines the fatal issue. I will proceed to enumerate the fatal cases, giving the duration of each, and the mode of dying which appears most probable from the histories. The circumstances connected with the last moments of life are not always detailed, so that the mode of dying cannot be asserted with positiveness in all instances.

The fatal cases in private practice :—

1 (*Typhus,*) Death on the 4th day, by asthenia.
2 (*Typhoid,*) on the 9th day, by asthenia.
3 (*Doubtful type,*) 8th day, by asthenia.
17 (*Typhoid,*) 9th day, by apnœa.

The fatal Hospital cases :—

1 (*Typhoid,*) Death on the 3d day after admission, previous duration not ascertained, by asthenia.

2 (*Typhoid,*) on the 15th day after admission, and the twenty-sixth after the date of the attack, by asthenia.

3 (*Typhoid,*) on the 6th day after admission, previous duration not ascertained, by apnœa.

4 (*Typhoid,*) on the 10th day after admission, and date of attack, by asthenia.

5 (*Typhus,*) on the 8th day after admission, and 13th after date of attack, by apnœa.

6 (*Typhus*) on the 3d day after admission, and seventh after date of attack, by apnœa.

7 (*Doubtful type,*) on the twenty-third day after admission, previous duration not ascertained, by asthenia.

Fatality.—The ratio of mortality in fifty-two cases, upon which this report is based, is a fraction over 21 *per centum.* In the Hospital cases, it is 18 8-19 per cent., while in the cases in private practice, it is 28 4-7 per cent. The ratio of mortality is a fraction greater in the cases of *Typhus*, than in those of *Typhoid.* The proportion of instances in which the disease proved fatal, is not large, judged by the average rate of mortality of this disease, and it is proper to state that the proportion of fatal cases would have been less, if all the Hospital cases of Continued Fever had been included in the collection. A few cases, which were probably cases of Continued Fever, were rejected because there seemed some room for doubt as to the correctness of diagnosis, and a few were excluded in consequence of meagreness of the histories; but every fatal case of the disease is embraced in the analysis.

SECTION TWELFTH.

Examinations after death.

In the few examinations which were made after death, the object was not to ascertain the appearances of all the organs, in order to gather from this source a complete assemblage of negative as well as positive facts. Time and opportunity were wanting for so minute and thorough an investigation as would be requisite for that object. The more important of the vital organs, in some cases, were inspected ; in some instances the dissection was limited to the display of the lesions which are most characteristic of this disease. In the *four* fatal cases in *private practice* no examinations after death were made.

Of the *seven* fatal cases in *Hospital*, examinations more or less extensive were made in *five*. The morbid appearances disclosed in these five cases, respectively, were as follows:

No. 1. (*Typhoid.*) Autopsy twelve hours after death.

Head.—Moderate adhesion of dura mater. Arachnoid membrane diaphanous; a little serum beneath the membrane at dependent portion of brain. Some effusion at base of brain, quantity could not be estimated, being commingled with blood which escaped on removing the brain from the skull. Large veins between convolutions, congested. A considerable number of red points on section of cerebral substance. Ventricles empty. Consistence of brain's substance normal.

Chest.—Slight, old adhesions over small space in right chest. Several ounces of sanguinolent effusion (say 5 or 6) in left chest. No adhesion in this chest; no lymph. Pleural membrane presented nothing to attract notice. Lungs on both sides free from morbid appearances, presenting the amount of hypostatic congestion generally found in autopsical examinations; crepitating throughout.

Heart.—Slight effusion of transparent serum. Organ rather below normal size. Left ventricle empty. Left auricle contained a small quantity of fluid blood. Right ventricle contained fluid blood, with some small, soft coagula. Right auricle moderately distended with blood, mostly fluid.

Abdomen.—Colon and cœcum greatly distended with gas, small intestines moderately so. Dividing the ileum close to the cœcum, and, lengthwise, for several feet upward, the glands of Peyer were found to be enlarged, projecting two or three lines above the surface of the surrounding mucous membrane. From fifteen to twenty patches were counted, the enlargement diminishing, progressively, upward. No ulcerations, nor discoloration perceptible. Mucous surface appeared healthy. Numerous enlarged solitary glands visible, some as large as small peas. Mesenteric glands, in portions of mesentery corresponding to diseased glands of Peyer, greatly their enlarged. At lower portion of ileum they were as large as filberts; the enlargement was less and less, in correspondence with the diminution of the size of Peyer's glands upward, and they ceased to be visible at a point corresponding to the limit of the latter. On section on the Mesenteric glands, some presented a red, and some a white color; none were found to contain pus or other fluid.

Stomach.—Presented punctuated redness, or ecchymoses. No capilliform redness. Size normal. Mucous membrane softened. Several ulcerations varying in size and form, the largest half an inch in length, and three or four lines in width, superficial, apparently having penetrated only the mucous coat. These appearances were limited to the larger curvature. The organ at this part was easily torn, a rent occurring in removing it from its vascular splenic attachments.

Spleen somewhat enlarged, but not softened.

Liver congested. Otherwise normal.

This case was characterized by active delirium, which persisted through the whole career of the fever. The absence of the evidence of encephalic inflammation in connection with this fact, is deserving of note. A report of the case in full, together with the above autopsical appearances, is given in the Buffalo Medical Journal, vol. IV, page 487, et seq. (No. for January 1849.)

No. 2. (*Typhoid.*) The examination in this case was limited to the abdomen, and even here was cursory. The omentum was adherent to the intestines, and the intestinal convolutions were adherent to each other. These adhesions, for the most part, were easily ruptured, but in some situations they were so firm that the force required to separate the adherent parts, occasioned rupture of the tube. In several instances, in separating the parts united by firm adhesions, small quantities of purulent matter escaped.

On longitudinal section of the intestinal tube, recently cicatrized ulcerations of Peyer's glands were apparent near the ileo-cœcal valve. One of these was as large as a quarter of a dollar. The abrupt termination of the mucous membrane formed a ridge surrounding these spaces, defining their boundaries. The parts that had been ulcerated were covered with a delicate, smooth surface, like serous membrane. The glands of Peyer, for several feet above the cœcum, presented ulcerated patches varying in size and form, which were mostly cicatrized as just described, but in some of those situated higher in the tube, the healing process was not completed. The mesenteric glands were enlarged, but none larger than a large pea.

Death occured in this case fifteen days after admission, and twenty-six days after the date of the attack.

A report of this case is contained in the Buffalo Medical Journal, vol. V, page 271.

The case was interesting in consequence of its affording a fine illustration of cicatrization of intestinal ulcerations completed, and in progress of completion. The patient died evidently of chronic peritonitis.

No. 3. (*Typhoid.*) Autopsy fifteen hours after death.

Head. Considerable congestion of the veins of the superficies of the brain, and numerous red points on section of the cerebral substance. Some effusion into arachnoid sac, precise quantity not ascertained. No effusion into ventricles. No softening of brain. Not the least opacity of arachnoid, nor effusion beneath it.

Abdomen. Colon distended with gas ; small intestines collapsed. The latter contained a small quantity of thin yellowish matter. Peyer's glands hypertrophied, so as to project above the surrounding mucous surface ; especially an elliptical patch near the cœcum. The ileum within the space of about three feet above the cœcum presented several elevated patches of different sizes. No ulcerations. Mesenteric glands corresponding to the lower portion of intestines, much enlarged. No lumbrici. The stomach, on its internal surface, presented several patches of ecchymoses. The mucous tunic was not softened, but easily detached from the middle coat.

Spleen small, and did not seem softened.

Liver presented nothing worthy of note.

Bladder much distended with urine. Other organs not inspected.

The history of this case from the time it came under observation, up to the termination, is given in full in this report—see page 203. It was regarded as a case of cerebral disease prior to the autopsy. The case affords another illustration of great predominance of cerebral symptoms without encephalic inflammation. It is also worthy of note in this case, that not only was diarrhœa absent, but costiveness existed in an extreme degree, resisting several drops of croton oil. It illustrates the fact that the absence of diarrhœa, and the existence of obstinate costiveness do not afford grounds for an inference that the glands of Peyer are unaffected.

No. 4. (*Typhoid,*) Autopsy, about fourteen hours after death.

Abdomen.—Peyer's glands hypertrophied, and, nigh to the cœcum, a large ulceration of the size of half a dollar. Enlargement of the mesenteric glands, greatest at the portion of mesentery corresponding to the lower portion of the ileum, and gradually diminishing in an upward direction. Hypertrophy of Peyer's glands gradually diminishing in degree, in ascending the tube. Spleen softened. Liver presented no morbid appearance. Other organs not inspected.

This case terminated fatally on the tenth day, by asthenia. The history of this case affords an illustration of the coexistence of costiveness with follicular disease and ulceration. The febrile career was not characterized by any peculiar circumstances.

No. 5. (*Typhus.*)

Head.—Moderate adhesion of dura mater to calvarium. Slight flow of serum on dividing the arachnoid. Arachnoid membrane transparent. Veins situated between the convolutions, injected. A little serum at the base of the brain. A few red points on section of the cerebral substance. No softening. No effusion into ventricles.

Chest.—The lungs anteriorly presented nothing unusual. Posteriorly, they were deeply conjested, and solidified. This was greater in some lobules than in others. Some lobules emphysematous.

About an ounce of clear serum in pericardium. Left auricle and ventricle contained a small quantity of fluid blood, without coagula. Right ventricle contained a small, soft coagulum, a portion of which was white; no fluid blood. Size and consistence of heart normal.

Abdomen.—Cœcum and colon greatly distended with gas, external appearance of intestines normal. On dividing the ileum, the paches of Peyer, for the space of several feet above the cœcum, were distinctly visible, numbering, in all, about a dozen. The lowest were somewhat softened, The appearance of the mucous membrane, otherwise, normal. A little thin yellowish matter adherent to the mucous membrane. Spleen not enlarged, but softened. A few mesenteric glands, at the lower portion of the mesentery, enlarged to the size of a small pea. Liver presented nothing abnormal. Stomach normal in size, mucous lining of a dingy brown color, notably thickened, and somewhat softened. No redness, nor vascular injection visible.

This case terminated fatally on the eighth day after admission, and the thirteenth after the date of the attack. The mode of dying was by apnœa. An eruption, having the typhus characters, existed over the abdomen, chest and extremities. Diarrhœa was not present, but slight meteorism and tenderness on pressure. The respirations were accelerated, ranging from 40 to 56. Deep congestive redness of the surface existed, and the conjunctiva was injected. There was present somnolency, muttering, and toward the close of life, the power of articulation was lost. The pupils, also, were somewhat dilated, and their mobility impaired. It is sufficiently clear, from the foregoing summary of symptoms, that the case was one of *Typhus*.

SECOND CLINICAL REPORT

ON

CONTINUED FEVER,

BASED ON AN

ANALYSIS OF FORTY-EIGHT CASES.

During the summer of 1850 I devoted the leisure hours that I could command to the preparation of a clinical report on Continued Fever, based on an analysis of fifty-two cases, the histories of which I had preserved. This report was published in successive numbers of the Buffalo Medical Journal, from August, 1850, to January, 1851, inclusive. The recurrence of the duties of the winter season rendered it necessary to leave the report unfinished. It remained to treat of the question of the identity of the different types of Continued Fever, the subject of diagnosis, and the management of the disease. These topics I proposed to take up during the present summer. In the mean time, during a service of six months at the Buffalo Hospital of the Sisters of Charity, an additional number of cases of Continued Fever have passed under observation, the histories of a large proportion of which were noted, and are preserved. An analysis of the latter will enable me to combine and contrast the results of a similar investigation of the two collections of cases. This is a sufficient inducement to enter upon the labor with reference alone to personal gratification and improvement. Entertaining, however, the hope that the fruits of the investigation may not be devoid of interest for others, and that they may possess some value as contributions to medical science, I propose, under the title of a "Second Clinical Report on Continued Fever," to present such facts and inductions as may be developed by the study of the cases recently collected, considered separately, and in connection with the collection of cases upon which the former report was based. The Hospital records for the six months' service from Oct. 1, 1850, to April 1, 1851, contain the histories of *forty-eight* cases of Continued Fever. This number added to those analyzed during the last summer, will make precisely one hundred cases. The two reports, therefore, will embrace an enumeration and comparison of the events contained in the number of recorded cases of Continued Fever just mentioned.

An hundred cases of Continued Fever, I am aware, will seem but a small number to those who are accustomed to see large hospital wards constantly crowded with persons laboring under this disease. With a view to the interest and perhaps importance of the results of numerical investigations, I could wish that the collections were larger, and I have not been without misgivings lest, on account of the limited amount of data, the time and trouble bestowed upon them might be greatly disproportionate to the fruits they are capable of yielding. But, on the other hand, had my records contained many more cases to be added to those upon which this Report is based, the labor of the analysis, enumerations, and comparisons would wholly preclude the undertaking. It is not improbable that in the overplus of materials may consist the chief obstacle in the way of such investigations by some of those whose opportunities for observation are much more extensive than mine. When Louis resolved to spend a series of years in the collection of data for numerical analysis, he not only relinquished the duties of private practice, but his mind was relieved even of the responsibility of directing the management of the diseases, the phenomena of which it was his sole business to record. And when he entered upon the task of classifying, enumerating and comparing the facts which he had gathered in the wards of *La Charite,* he intermitted the labors of observation and registration, and, retiring into the country, devoted his whole attention, for many months, to analytical researches. Few persons would be satisfied thus to consecrate their time and energies to purely scientific toil, and of those inspired by a similar zeal in behalf of medical science, how few are able to divest themselves of the many daily cares and duties which almost of necessity occupy a large share of the exertions of mind and body!

Small, comparatively, as is the number of cases I have collected, and less complete, in some respects, than could be desired, as are the histories, I venture to think that they may furnish results not altogether valueless. Without the encouragement of such an expectation, it would, assuredly, be worse than folly to undertake a task which will consume the leisure hours of several weeks. Should the Report repay but poorly the trouble of perusal, it may perhaps moderate a disposition to complain, to consider that its preparation has cost vastly more labor than will be requisite to discover its demerits, and that the reader is therefore much less unfortunate than the author.

The histories of the cases upon which the former Report was based, were recorded wholly by myself. It is proper to state that this is not true of all the cases in the present collection. In a considerable proportion of the latter, the recording of symptoms and events was entrusted to Mr., now Dr. Sandford Eastman, at that time a resident student at the Hospital. The patients were daily examined, and the notes revised by me. In several particulars the daily records are more full than would have been practicable had the whole duty been performed by myself, but in some points they are probably less so. In the accuracy of the events and symptoms registered by Dr. E., I have entire confidence, and I avail myself of this occasion to express my indebtedness to his industry and fidelity.

Of the forty-eight cases forming the subjects of the present analysis, *twenty-nine* presented unequivocal evidences of the *Typhoid* type of Continued Fever; *ten* were considered, as unequivocally, cases of *Typhus*, and *nine* are classed under the head of cases of *doubtful type;* under the latter head are included all the cases in which there might be some ground of uncertainty as to the correctness of the diagnosis, had they been placed in either of the preceding classes. The reasons for this uncertainty in a certain proportion of the cases of Continued Fever which fall under observation, will be considered hereafter, in connection with the subject of diagnosis.

Of the *twenty-nine* cases of *Typhoid* fever, *seven* proved fatal. *Four* of the *ten* cases of *Typhus* ended fatally. All of the *nine* cases of *doubtful type* recovered. *Eleven*, thus, of the whole number of cases, i. e. 48, were fatal. The number of deaths is precisely the same as in the first collection of cases, making *twenty-two*, out of the *one hundred cases.*

I shall arrange the facts and considerations to be submitted in the following Report, in the same divisions before adopted, assigning to each division a separate section. In many of the points of investigation, the interest and importance of the results are restricted to those cases which are considered to belong either to the *Typhoid* or *Typhus* type of Continued Fever. In all such instances there will be no advantage in referring to the cases of doubtful type. It should be added, that in this, as in the former collection, the uncertainty as to the diagnosis of the cases of *doubtful type* concerns solely the question as to which of the two types, Typhus or Typhoid, they belong. No doubt exists as to their having been cases of Continued Fever.

For convenience of reference to corresponding portions of the first Report, the number and page of the sections will be prefixed to the sections of the present Report having the same headings.

SECTION FIRST.

Age, Sex, Occupation, Civil Condition, Nativity, Habits, Season, Constitution and previous Health of the Patient. Period of residence in this Country and in this City. Duration of the Disease before coming under Observation. [Page 16.]

The ages of the patients are given in *twenty-six* cases of the *Typhoid* type, and are respectively as follows:

50, 38, 35, 35, 28,
27, 26, 24, 24, 23,
22, 21, 20, 20, 20,
20, 19, 18, 18, 18,
17, 17, 15, 14, 12,
9,

Average age 22 9-13.

This differs in a fraction only from the mean obtained in the former analysis, which was 22 2-17. The coincidence developed by the two analyses is in accordance with the law of the disease, as respects age, stated in the first Report.

Of the *Typhus* cases, the ages are given in *eight*, and are as follows:

54, 26, 25, 24, 21,
19, 17, 24,

The maximum, and the mean are higher than in the Typhoid cases. The average is 26 1-4. In the first Report it was found, in *ten* cases, to be 26 1-2. Here, too, is the difference of a fraction only—a coincidence striking, and also in accordance with a law of the disease. Comparing the average age of the fatal cases, with the average of the whole number, the following is the result:—In *six* fatal cases of *Typhoid* the average age was 31. The patient with the maximum age (60) died. The law that the average age of those who die with this form of the disease, is greater than the average in favorable cases, is here exemplified, as it was in the former analysis, but in a more striking degree in the present collection. The age of a patient affected with Typhoid Fever is thus of some account in the prognosis.

Of the *typhus* cases, the average age in three of the fatal cases was 24 1-3, being less than the average in the cases that recovered.

Sex.—Of the forty-eight cases, *thirty-three* were males, and *fifteen* females. Of the twenty-nine *Typhoid* cases, *twenty-one* were males, and *eight* females. Of the ten *Typhus* cases, *seven* were males, and *three* females. Of the cases of *doubtful type*, *five* were males, and *four* females. The relative number of females is considerably greater than in the first collection of cases.

Occupation.—In the histories of the twenty-nine *Typhoid* cases, the occupations noted are as follows:—laborers, *fourteen;* domestics, (females,) *six;* cook, (male,) porter in hospital, fireman, boatman, wheelwright, and farmer, each *one* case. In *three* cases the patients were too young to have any occupation. In *nine* of the *Typhus* cases the occupations were as follows:—laborers *five*; boatman, domestic, Sister of Charity, candidate for the Sisterhood, *one* case of each.

The patients, as will be perceived, were mostly of the class, in social position, who would be expected to resort to a charitable institution for the relief of the sick.

Civil Condition.—Of *twenty-eight* cases of the *Typhoid* type in the histories of which the civil condition of the patients is noted, *twenty-six* were single, and *two* married.

Of *nine* cases of *Typhus*, in *eight* the condition was single, *one* patient only being married.

All the *nine* patients with Continued Fever of doubtful type were single.

The great preponderance of the cases in which the patients were single, is probably to be explained, first, by the fact that the disease, more especially the Typhoid form, affects in preference the young; and, second, a very large proportion of all the patients who are admitted into the hospital with different diseases are unmarried, and are led to seek admission in sickness in consequence of not having homes of their own.

Nativity.—Typhoid cases: nineteen were Irish; *five* Germans; *three* Englishmen; *two* Americans.

Typhus cases: eight were Irish, and *two* Americans. In the two latter cases the disease was contracted within the Hospital. It is worthy of notice, that in all but the two cases in which the disease was contracted at the hospital, the patients affected with *Typhus* were from Ireland. Nearly the same results obtained in the first collection.

Habits.—The habits of the patients as respects intemperance, etc., were generally not ascertained.

Season.—Of the twenty-nine *Typhoid* cases, in *one* the commencement of the disease is dated in September, three days before my service commenced. The remaining twenty eight cases occurred as follows:

In October, *eleven* cases;
In November, *eight* cases;
In December, *eight* cases;
In January and February *no* cases;
And in March *one* case.

The predilection of this type of Continued Fever for the months of October, November and December is thus exhibited. It may be suspected that the above facts are owing in part to the diminished influx of immigrants during the winter, inasmuch as it will presently appear that a large proportion of the patients had recently arrived in this city. That this explanation is not applicable is shown by the Hospital Register during the summer season, when the floating population of the city is largest. From April to September, inclusive, 1850, I find during the six months, respectively, the number of cases recorded as Typhoid fever to have been as follows:—April, May, and July, in each, *two* cases; August, *five* cases; September, *two* cases. In all, *thirteen* cases.

The ten cases of *Typhus* occurred as follows:

September 30th, *one* case;
October, *one* case;
December, *two* cases;
March, *five* cases;
April, *one* case.

During the six months from April to September, inclusive, I find the following cases of *Typhus* registered:

April, *two* cases;
May, *four* cases;
June, *one* case;
July, *three* cases;
August, *three* cases;
And September, *two* cases.
In all, *fifteen* cases.

These results accord with the more extended observations from which it has been deduced that while *Typhoid* fever is much more liable to occur in the autumnal, than in other months of the year, *typhus* occurs irrespective of season.

Constitution and Previous Health of the Patients.—The constitution and previous health are not noted in the histories of *seven* of the *Typhoid* cases. Of the remaining *twenty-two* cases, in *twenty* the patients possessed good constitutions, and were attacked while in excellent health. In *one* case, the patient, a porter in the hospital, was laboring under a chronic ulcer of the leg of long standing; and in *one* case the patient had chronic conjunctivitis.

Of the *Typhus* cases, the histories are defective, in these points, in *four*. In all the remaining *six* cases, the constitution and general health were good. Of the cases of *doubtful type*, in a single case only is it stated that the patient was not in perfect health. In that case the patient was attacked with fever in the hospital, having entered for, and still laboring under chronic conjunctivitis. In the remaining cases, save one, the history of which is silent on he subject, the health and constitution were good.

So far as these results go, they concur with those presented in the first Report in leading to the conclusion that persons having good constitutions, and in good health, are those most likely to be attacked with continued fever.

Period of Residence in this Country and in this City.—Typhoid Cases. The facts pertaining to these points are noted in the histories of *twenty* cases, and are presented in the following table:

	Period of Residence in Country.	*Do. in City.*
1.	Nine months.	Two months.
2.	Four months.	One week.
3.	Two and a half weeks	Entered day of arrival.
4.	Twelve months.	Two months.
5.	Three months.	Ten days.
6.	Sixteen months	Sixteen months.
7.	Five weeks.	Four weeks.
8.	Two weeks.	Entered day of arrival.
9.	Six months.	Four months.
10.	Four weeks.	Not stated.
11.	Four years.	Two months.
12.	A few months.	Entered day of arrival.
13.	Eight months.	Eight months.
14.	Twenty-one months.	Twenty months.
15.	Two weeks.	Four days.
16.	Two weeks.	Four days.
17.	Five weeks.	Two weeks

18. Recently arrived.	Recently arrived.
19. Four weeks.	Three and a half weeks.
20. Four weeks.	Three and a half weeks.

In the *nine* remaining cases the histories are defective as respects the points under consideration. It is not noted in a single case that the patient was a permanent resident of the city.

It will be apparent on reference to the foregoing table, that this, as well as the first collection of cases, affords a striking illustration of the law developed by the researches of Louis, viz., that Typhoid fever is prone to affect those "placed in circumstances entirely new to them," which are incident to recency of residence. It may be said that the inmates of an hospital in a thoroughfare like Buffalo, would be expected to consist chiefly of persons lately arrived, they being far more likely to resort to such an institution than the settled inhabitants of the place. It is true that a large proportion of the patients admitted with all diseases are of the former class; but the preponderance is not nearly so great in the aggregate of other affections as it is in Typhoid fever. In this connection it should be stated, that Typhoid fever, although occurring occasionally among the fixed population of this city, is by no means a common disease, and, until within a few years past, was almost unknown. During the six months that the cases in this collection were recorded, it was by no means prevalent, unless among the same class of persons, recently arrived, which furnished the cases at the hospital. My private practice not embracing many patients of this class, I am unable to say to what extent it prevailed among them. The cases coming under my observation, aside from those in hospital, during the period first mentioned, included only two or three cases, excepting a few cases of infantile Continued Fever, which perhaps would appropriately be called Typhoid.

Typhus cases.—Of all but *two* of the ten cases of *Typhus*, the histories contain information on these points, which is presented in the following table:

Period of Residence in Country.	*Do. in City.*
1. Five weeks.	Not stated.
2. Five weeks.	Five days.
3. Eight days.	Three days.
4. Eleven days.	Three days.
5. A few days.	Ten days.
6. Eight days.	Three days.
7. Resident in Hospital.	
8. Do. Do.	

Taking into consideration the infrequency of Continued Fever of the Typhoid type, and the still rarer occurrence of Typhus, in this place, except among foreign immigrants, it seems probable that the remote special cause of the disease was generally imbibed prior to the period of residence in this city, if not prior to arriving in this country.

Duration of Disease before coming under Observation.—In none of the cases, except those originating within the hospital, were the patients under observation from the very commencement of illness, and the duration before admission presents considerable diversity in the different cases. In several instances the patients had been ailing for several days, but had kept up until they entered the hospital, but in most cases they had been confined to the bed for one, two, three, four or more days. The variations, as respects this point, are obviously due, in a great measure, to circumstances extrinsic to the disease. More or less delay in getting admission might arise from various causes, and patients would wait, some longer, and some for a less period, before seeking to be admitted. For these reasons, there would be no object in presenting the facts pertaining to the duration of the disease before coming under observation, contained in the histories of the individual cases.

There is one fact, however, relating to this point which is worthy of notice. The duration of the disease before the patients entered the hospital, as a general remark, is strikingly shorter in the cases of *Typhus*, than in the cases of *Typhoid*. In *one-half* the cases of Typhus it is stated that the patients did not take to the bed prior to entering the hospital; and of the remaining *five* cases the histories are defective in information on this point in *three;* in *one* the patient took to the bed the day before admission; and in the other case the patient was attacked in hospital.

Of the twenty-nine cases of Typhoid, it is stated that the patients had not taken to the bed before admission, in only *five* cases!

The fact that patients with *Typhus* enter earlier in the disease than those affected with the *Typhoid* type of Continued Fever, is probably significant of another fact, viz., that the onset of the former impresses the patient more strongly with a sense of greater gravity of the malady.

SECTION SECOND.

The Access, its Duration and Symptoms. Circumstances supposed to have been concerned in the Production of the Disease. [Page 23.]

Duration.—The access, in other words the prodromic, or forming stage of Continued Fever, embraces the period which elapses from the commencement of ailment to the time when the disease is established, or the febrile career fairly entered upon. But the symptoms of this period generally merge so imperceptibly into those which follow, that it is often extremely difficult to draw the line separating the former from the latter. And especially to determine the time when the access ended, and the fever began, in cases which do not come under observation until after the latter epoch, would generally be impracticable, unless some circumstances be fixed upon which shall serve as a sign or criterion of the point which we wish to establish. In my former Report it was suggested to select as the juncture at which the commencement of the febrile career should be dated, the day on which the patient, from the amount of debility, etc., feels no longer able to sit up, but is compelled to take to the bed. This is an arbitrary rule, not claimed to be always accurate, but it may be doubted if any other uniform test can be suggested which, in the average of cases, is more reliable; and it has the advantage of being readily and exactly determinable in the great majority of instances. It will seldom happen that we cannot ascertain, either from the patient, or from others, how many days have been spent in bed. With an equal amount of debility, etc., some patients will take to the bed sooner than others. Various circumstances, moreover, may prevent patients from yielding to an inclination to take to the bed, and stimulate them to make strong exertions to keep up, and even continue at labor as long as possible. Some of the patients in this, and the first collection of cases, had not only kept about, but had rode many miles, or walked a considerable distance to the hospital, when the presence of the eruption, and other symptoms, showed that the fever had been established already several days. Other patients differently situated, or of a different mental constitution, take to the bed on the first indications of ailment. These cases, it may be presumed, will compensate for each other, so that, in the long run, the event fixed upon will be found to be sufficiently precise for all practical purposes, and, at all events, as much so as any other test equally available.

In the histories of a large proportion of the cases forming the present collection, it is not definitely stated how long the patients had been confined to the bed. This omission was owing to inadvertence. In *ten* cases of the *Typhoid* type in which the facts with respect to this point were ascertained, the duration of the access was as follows:—

Four days, - - - -	Three cases.
Three days, - - - -	Three cases.
Six days, - - - -	One case.
Attack sudden, - - - -	Three cases.

The period from the first symptoms of ailment is given in the histories of most of the cases, but the defect is in not stating how long, if at all, the patients had kept their beds. The foregoing cases suffice to show that the access is sometimes sudden, but in other cases, having a duration varying from three to six days.

In the histories of *Typhus* cases the duration of the access is specified as follows:—

Three days, - - - -	Two cases.
Two days, - - - -	One case.
Four days, - - - -	Two cases.
Attack sudden, - - - -	One case.

In two of the remaining cases it is noted that the duration was 'several days.'

The foregoing results do not afford any confirmation of the law, deduced from extensive observations, that the *Typhus* type of Continued Fever oftener commences with a sudden attack, or is ushered in by an access of shorter duration than *Typhoid.* The cases, however, are too few to render the comparison in this particular of much value.

Symptoms of Access.—In all save a very few cases, the symptoms of the access were not observed, the patients not entering the hospital until this period was passed, and more or less progress made in the febrile career. Information respecting the previous history was generally obtained from the patients themselves—a source not always perfectly reliable, owing to the condition of mind incident to Continued Fever. The replies to questions may be coherent and rational, but nevertheless incorrect, while perhaps there are no manifestations of delirium, nor any deliberate intention on the part of the patient to deceive. Of the more prominent of the early events that mark the access, however, most patients retain a clear recollection, certainly during the early part of the febrile career, and comparatively few entered the hospital at an advanced period of the disease, when the reliability of their statements would be invalidated by the mental condition just referred to. In some of the cases an account of the symptoms of the access is defective, or wholly wanting, because the patients were plainly incompetent to give information on the subject. The questions generally were confined to the more prominent events, such as cephalalgia, chills, diarrhœa, etc. The records are not uniformly so full with respect to these as could be desired.

Chills.—In *twenty-one* cases of the *Typhoid* type, the histories state distinctly that chills were, or were not present. And of this number of cases one or more chills marked the access in all but *one* case, i. e. in *twenty cases.* In one case, it is stated, no chill occurred. The degree of chill, and its duration, and whether rigor accompanied, are not stated. In *four* cases, it is stated, a recurrence of chill was experienced, and in *two* of these cases, a *third* chill took place.

With respect to an increase of heat after the chill, sensible to the patient, or rather sufficient to attract his attention, positive information is contained in the histories of *fifteen* cases. It occurred in *twelve* of these cases, and in the remainder, *three*, was not noticed.

Perspiration occurred after the chill in *ten* of the *fifteen* cases the histories of which contain information on this point. In *five* no perspiration followed.

Of the ten cases of *Typhus* the symptoms of the access were not recorded in the histories of *five*. This proportion of cases in which the records are thus defective, is probably significant of the fact that the mind, earlier, and more uniformly becomes affected in this type of Continued Fever, so as to render information concerning the previous history more uncertain, or not reliable.

Of the *five* cases in which an account is given of the access, a chill occurred in *four*, and in the remaining cases it is not stated whether this symptom occurred or not. A recurrence of the chill took place in *one* of the *four* cases. It is stated that the chill was followed by increased heat in *two* cases; and of these, perspiration succeeded in *one*, and it did not follow in the other case.

Cephalalgia.—Of the *Typhoid* cases it is stated positively with respect to this symptom in *twenty-three.* Cephalalgia occurred in *twenty-one* of this number, and was absent in *two* cases.

Of the *Typhus* cases, it is stated positively in *six.* Cephalalgia occurred in *four* of this number, and was absent in *two.* In the histories of some cases this symptom is said to have been severe or intense, but generally the degree of pain is not expressed.

Pain in the loins, is stated to have been present in *fourteen* cases of the *Typhoid* type. It is stated to have been absent in *two* cases. Of the remaining *thirteen* cases it is presumed to have been absent in several, at least, from the fact that it would probably have been included in the previous history had it been present.

Of the *Typhus* cases the presence of this symptom is affirmed in *one* case only, and it is stated to have been absent in *two* cases. In *seven* the histories do not contain information on this point.

Pain in the limbs, is stated to have been present in *sixteen* of the *Typhoid* cases. The histories of the remaining cases are silent with respect to this symptom.

It is stated to have been present in *two* cases of *Typhus*, and nothing stated on the subject in the remaining cases.

The patients were not questioned with respect to a symptom which, as all observers are aware, is a common attendant on an attack of fever, viz, lassitude, or a painful sense of fatigue.

Nausea and Vomiting.—In the histories of *fifteen Typhoid* cases, it is stated positively with respect to these symptoms. They were present in *twelve* of that number, and in *one* case nausea existed without vomiting. Generally these symptoms were slight. In *two* of the *fifteen* cases they were not present.

In the histories of the *Typhus* cases it is only recorded that in *one* case there was no nausea nor vomiting. Nothing is stated on the subject in the remainder.

Diarrhœa.—The histories of the *Typhoid* cases contain information respecting this symptom in *twelve.* Of this number, it was present in *seven*, and absent in *five.* It is to be presumed that it was not a prominent symptom, to say the least, in the cases, the histories of which are silent with respect to it.

It was absent in *six* of the cases of *Typhus*, and is not stated to have been present in a single case of that type.

This symptom might have been present in some cases in which it is stated to have been absent, if simply looseness of evacuations, without increase in number, were considered to constitute diarrhœa, after the custom of the French. It would not be stated that diarrhœa had existed except in cases in which the dejections were more or less frequent.

Thirst is stated to have been present in *twelve* cases of *Typhoid* and *two* cases of *Typhus.* Its absence is not noted in the history of a single case of either type. In a large proportion of the cases in the histories of which the presence of thirst is noted, it is stated to have been intense.

Anorexia is stated to have been present in *twelve* cases of *Typhoid*, and in *four* cases of *Typhus.* Its absence is not noted in a single case of either type.

Cough is not mentioned as a symptom of the access save in *two* cases of *Typhoid*, and *one* case of *Typhus.*

Epistaxis is noted to have occurred in the histories of *three Typhoid* cases; and its absence is noted in *five* cases of the same type. It is not noted to have been present in any case of *Typhus*, and its absence is noted in only a single case.

Causation.—The patients were generally asked if they could attribute their illness to any particular cause or causes; if they had ever before had an attack of fever; and, if immigrants, whether any disease prevailed in the vessels which brought them to this country, or at the places of their residence about the time of their leaving.

The histories of *twenty* of the *forty-eight* cases contain nothing relative to either of the points just mentioned. The facts pertaining to the remaining *twenty-eight* cases, which are noted, are as follows:

In *two* of the *Typhoid* cases the patients said the disease commenced with their taking cold. The same was stated by *one* of the patients affected with fever of a *Doubtful type*.

In *six Typhoid* cases the patients, immigrants, declared that there was no sickness, but sea-sickness, on board the vessel in which they came over, nor at the places from which they came. The only exception to this statement is, that one patient said there was a person ill on board the vessel, but he did not know with what disease. In the histories of those cases of *Typhus* in which the patients were immigrants, nothing is stated relative to sickness on the voyage, or before sailing. In no case of either type is it stated that the patient had been in proximity to persons laboring under fever. These facts, in so far as they go, while they show the liability of immigrants to be attacked with fever, shortly after their arrival, and, considering the infrequency of continued fever in this city, render the supposition probable that the special cause of the disease, in the cases referred to, was introduced within the system prior to their reaching this country, do not supply any illustrations of the agency of contagion in the production of the disease.

In the history of *one* case of *Typhoid* it is stated that the father and mother of the patient were, at the same time, in the hospital with Continued Fever, the father being affected with *Typhus*, and in the case of the mother the disease being of *Doubtful type*. In *two* of the *Typhoid* cases the patients were brothers, both cases being in progress at the same time.

In *two* cases of *Typhus* the patients came over in the same vessel, both cases progressing at the same time.

In *two* other cases the patients came over in the same vessel, one case being of *Typhus*, and the other of *Doubtful type*.

In *one* case of *Typhus*, and *one* of *Doubtful type*, the patients were brother and sister, and came over in the same vessel.

These facts probably show community as respects exposure to the special remote cause of the disease.

In *one* case of *Typhus* the patient stated that he had not changed his linen, or any of his clothing, from the time he embarked in Ireland, up to the date of his admission into the hospital!

One patient affected with fever of *Doubtful type* stated that he had been accustomed to sleep in a small room in which were lodged from fifteen to twenty persons.

In but one case of *Typhoid* does the history state that the patient had ever before had fever. In this case the patient stated that he had had fever a year before in Ireland, both his parents being affected with the disease at the same time. In *one* case of *Typhus* the patient said he had had fever twenty-five years before. In *two* cases of *Doubtful type* the patients said they had previously had fever, one three years, and the other two years before. The small proportion of cases in which the previous occurrence of fever is stated, is obviously the point most worthy of note, and it is to be remarked that in these cases it is by no means certain that the disease referred to was Continued, or indeed any form of essential fever.

In several of the cases the probable source of the disease was in contagion. I will give the circumstances favoring this view of the causation in the cases referred to, respectively. The cases were of the following types: *Typhoid, three* cases; *Typhus, two* cases; *Doubtful type, two* cases. In all *seven* cases.

Of the *Typhoid* cases, in one case the patient, four or five weeks before being attacked, was with a brother affected with fever. He had slept with him at night, and labored during the day time. In another case the patient, who had lately come to this country, a short time before being attacked, (the time is not definitely stated,) had taken care of a friend affected with fever who came over in the same vessel. In the third case the patient was employed as a porter in the hospital. He was in the general ward much of the day time, and slept in the ward at night. There had been, a short time before he was attacked, several fever patients in the ward, and he had had particular charge of them at night. He had had a chronic ulcer of the leg, and had also had erysipelas. The ulcer had healed about two months before he was attacked with fever.

Of the *Typhus* cases, in one, the patient was a *Sister of Charity* attached to the hospital. She was attacked while nursing in the general ward in which there had been cases of fever of both the typhus and typhoid types. In the other case, the patient was a candidate for the Sisterhood, and was attacked while rendering services in the same ward.

Of the cases of *Doubtful type*, in one, the patient was a surgical patient laboring under chronic conjunctivitis, who was frequently in the general ward in which fever patients were received. In the other case the patient was one of the *Sisters of Charity* who was assigned to the general ward, and had lately nursed fever patients affected with the typhus and typhoid form of the disease.

Adding together the cases in the present and former collection in which the causation of the disease appeared to involve contagion, the sum is *ten*, i. e. *ten* of the *one hundred* cases.

The cases most clearly due to contagion are those in which the patients were *Sisters of Charity*. In the former Report it was stated that the two Sisters to whom had been assigned the care of nearly all the fever cases during the winter, alone, of all the inmates of the hospital, became affected with fever. The two Sisters, and the candidate for the Sisterhood, included in the present collection of cases, had also special care of fever cases, and of the Sisters to whom other duties were assigned than nursing fever patients, none have been affected with fever. *There have been ten Sisters of Charity attached to the hospital during the past two years, and of these the four that have had Continued Fever have been those who have been especially brought into contact with fever patients.*

An interesting circumstance connected with these cases is, that they all occurred during the Lenten season, as also the case in the person of the candidate for the Sisterhood. The exposure was not greatest at this portion of the year, nor were the duties more arduous, and therefore it seems fair to suppose that the abstinence, and increased devotional exercises of this period must have had some agency in the causation of the disease, rendering, probably, the system less able to resist, or eliminate the miasm of contagion.

SECTION THIRD.

Symptoms referable to the general aspect, and expression of countenance. [Page 28.]

The complexion, or color, of the face, was almost uniformly altered from that of health. Redness, due to capillary congestion, was present in *twenty-six* of the *twenty-nine* cases of *Typhoid*, and in the remaining *three* cases its absence is not affirmed. Its presence was noted in *all* of the *ten* cases of *Typhus*. The redness now referred to, is that described in the first Report, resembling the appearance of the surface after exposure to cold. It is not a *flush*, like that occasioned by mental emotions, or occurring in connection with excitement of the circulation by exercise, or with high febrile movement. The latter is frequently, if not generally, observed in the early part of the career of Continued Fever, and is noted in some of the histories in this collection; but the *congestive redness*, as it is called in the records, is evidently owing to a passive accumulation in the capillary vessels. The color is more dull than when the face is flushed, and the temperature is but little, if at all, perceptibly raised. It is especially marked on the cheeks, and is sometimes confined to the cheeks, but without being circumscribed by a sharp border.

The redness differs, in different cases, in degree. Of the *twenty-six* cases of *Typhoid* in which it was more or less present, it was characterized as *intense* in but a single case; it was *slight* in *six* cases, and in the remaining cases it was either *moderate*, or *considerable*. In the cases of *Typhus*, the redness was *intense* in *five* cases, and in no case was it but *slight*. In proportion to the intensity of the congestion, the surface presented a dusky or dingy hue.

The disparity between the two types of the Fever, as respects this symptom, is a distinctive point worthy of note. The redness is rarely intense in *Typhoid*, although more or less present in nearly all cases; but in *Typhus* it would seem to be uniformly present, and is intense in a much larger proportion of cases. A dusky or dingy color of the face is, thus, somewhat distinctive of the latter type.

A symptom so constantly associated with the disease, although not of a very striking character, must have some pathological significance, especially if it be not a symptom common to other affections. Of the extent to which it is associated with different diseases I cannot speak from an adequate number of recorded observations, but all observers are aware that it occurs in connection with affections involving obstruction of the general circulation. Thus it is present in diseases of the heart, in pneumonitis, pleuritis with large effusion, etc. The symptom, under these circumstances, is induced purely by physical causes of an obvious character. That the symptom is not due to these causes in Continued Fever, is rendered probable by the facts presented in the former Report. These facts show that it does not sustain relations with symptoms referable to the heart and lungs, which should exist if it were incident to morbid conditions of these organs mechanically obstructing the general circulation. The reader is referred to the first Report for these facts. A fair inference therefrom is, that the capillary congestion arises from an obstacle inherent in the capillary system. And if, as is probable, this obstacle pertains to the blood itself, rather than to the capillary vessels, the symptom under consideration is to be regarded as favoring the humoral doctrine of the pathology of Continued Fever.

The face is not the only seat of capillary congestion in Continued Fever. The same condition generally obtains, more or less, over the surface of the body, as will be seen in the section devoted to the symptoms referable to the skin. It is always present on the face, if it exist in other portions of the cutaneous system, and is invariably more marked in the former situation. It is sometimes to be observed on the face when it is not obvious elsewhere.

It is of importance to bear in mind that the same condition of the capillary system, it is probable, obtains in internal organs. This may be presumed, especially if the source of the congestion is considered to be in the blood itself.

Congestive redness of the face was usually apparent from the time the patients came under observation. It continued generally through the greater part of the febrile career, varying somewhat in degree. In some cases it persisted after convalescence was declared, but in other cases it gradually diminished and disappeared on, or shortly before convalescence.

A *circumscribed flush* of the cheeks was noted in several cases, viz; in *six* cases of *Typhoid*, in *two* cases of *Typhus*, and in *two* cases of *Doubtful type*,— in all, *ten* cases. This symptom, which is somewhat characteristic of primitive pneumonitis, appears to be significant of the same affection occurring as a complication of fever. Of the *six Typhoid* cases in which it was present, pneumonitis undoubtedly co-existed in *four*, and probably in the *two* remaining cases. Of the *two Typhus* cases, pneumonitis was present in *one*, and probably present in the *other*. The *two* cases of *Doubtful type* were complicated with pneumonitis.

The expression of countenance, as indicative of the condition of the mind, was almost invariably more or less modified. The terms used to denote the appearances in this respect are, *vacant*, *dull*, *heavy*, *listless*, *indifferent*. In *one* case, characterized by violent delirium, the expression indicated terror. *Brightness* of expression was observed to accompany improvement in other symptoms. A decided change for the better was frequently revealed by a glance at the countenance of the patient. Patients affected with fever, almost invariably present, during the febrile career, a grave, sedate expression, and a smile on approaching the bed side, is often the harbinger of convalescence. There are some exceptions to this remark. In a few cases embraced in the first collection, the countenance throughout the febrile career wore an aspect of mirthfulness and good humor, the patients presenting, on convalescence, a more serious expression, thus reversing the general rule. This was true of *one* of the cases of the *Typhus* type in the present collection.

SECTION FOURTH.

Symptoms referable to the Nervous System. Mind, Sleep, Coma, Senses and Sensibility, Muscular Contractions, etc. [Page 34.]

Delirium was present in a large proportion of the cases. Excluding the cases in the histories of which the facts with respect to this symptom were not recorded, of the remaining *thirty-eight* cases, more or less delirium existed in *thirty*. The proportion of cases of the two types, *Typhus* and *Typhoid*, in which the symptom was present, is as follows: — of *twenty-two* cases of *Typhoid*, of which the histories contain information on this point, it existed in *seventeen*. Of *nine* cases of *Typhus*, it existed in *eight*. It existed in *five* of *seven* cases of *Doubtful type*.

It is interesting to see how nearly the above results approximate to those developed by the analysis of the first collection of cases. The proportion of cases in which delirium was present in the two collections respectively, is as 30–38 is to 43–52. Comparing the two types, *Typhus* and *Typhoid*, in the two collections, with respect to this symptom, in *Typhoid*, the relation is as 17–22 is to 23–30; in *Typhus*, as 8–9 is to 11–12; in the cases of *Doubtful type*, as 5–7 is to 7–8. It is hardly to be supposed that the close approach to equality in these results, is due simply to accidental coincidence, and, therefore, it may be inferred that these results express laws of the disease as respects the numerical ratio in which, in a given number of cases of either type of the fever, this symptom may be expected to be present.

It will be observed in this, as in the former collection, that delirium is present in a much larger proportion of cases of the *Typhus*, than of the *Typhoid* type.

In the great majority of the cases in which more or less delirium existed, it was passive in its character, that is, the patients were not violent, so as to require restraint. Great activity, or violence, characterized the delirium in only *one* case of *Typhoid*, and in this case it was a very prominent and persistent trait. In *two* cases of *Typhus* it assumed somewhat an active character, for a short time, but much less in degree than in the *Typhoid* case just mentioned. The cases varied considerable as respects the duration and degree of the delirium, as well as the period in the febrile career at which it appeared. It became developed earlier in the course of the disease, as well as more constantly, in the cases of *Typhus*, than in the cases of *Typhoid*. In some cases it continued through the greater part of the febrile career; in other cases it was of short continuance. It was only observed, in some cases during the latter part of the career; in other instances it appeared at an earlier date, and ceased some days before convalescence. Occasionally it occurred at irregular intervals during the disease. It was almost invariably more marked during the night, than during the day time, and frequently existed only at night.

The manifestations of delirium consisted in incoherent talking, and efforts to get out of bed; in some cases the former only, and in other cases both conjoined. The hysterical character described in the former Report as occurring in a few cases, was not observed in any of the cases in the present collection.

In nearly all the cases in which more or less delirium was not present, or not apparent, the fever was of a mild grade of intensity.

In the fatal cases the facts with respect to delirium are as follows: — Its presence was noted in the histories of all the fatal *Typhoid* cases save two, i. e. in *five* of *seven* cases. Of the two cases in which its presence is not noted, in *one* the patient died from intestinal perforation, an event which has been found to be more likely to occur when the disease is mild, than when it is severe. In the *other* case the patient died on the second day after admission, in apoplectic coma. Of the *five Typhus* cases in which it was present, it was a prominent symptom in *all* save *one*. In the history of the *single* excepted case, it is distinctly noted that no manifestations of delirium were observed. This exception is important, especially when it is considered that the excepted case was the only one in the *Typhus* group in the history of which the absence of delirium is noted. It suffices to show that absence of delirium does not, in itself, justify a favorable prognosis, while the burthen of facts undoubtedly favors the conclusion that, generally, this symptom denotes a certain degree of gravity in the disease, and that, being a prominent feature in a larger proportion of fatal cases than in those ending in recovery, it should influence, in proportion to its prominence, unfavorably, the prognosis.

The delirium, in Continued Fever, in the great majority of cases, is passive, the patients remaining quiet, but talking irrelevantly, and incoherently; or, in addition thereto, making efforts to get up, but easily persuaded, for the time, to desist, or return to the bed. Sometimes, but this is rare, the delirium is noisy, the patient vociferating, or shouting; and occasionally some difficulty is experienced in persuading him to keep in bed. In a small proportion of cases the delirium is remarkably persistent and violent, constituting the most prominent feature of the disease. *Three* instances of the latter description are embraced in the one hundred cases I have analyzed. *Two* of these are included in the first collection. The delirium, in these cases, commenced rather early, and continued without cessation, or abatement, up to a few hours before death. The manifestations consisted in loud talking and incessant attempts to get out of bed, rendering considerable restraining force, and constant care on the part of the attendants, necessary. Both cases were fatal. Both were of the *Typhoid* type. These cases are distinguished, not by the occurrence of active delirium, for this was true of a few other cases, but by its steady continuance, as well as violence. It is important to be aware of the fact that Continued Fever may be characterized by an excessive predominance of this symptom. Without this knowledge, and due care in the diagnosis, the disease may be thought either to consist in, or to involve encephalic inflammation—an error of some practical moment; or, worse than this, it may be considered to consist in merely a functional affection of the brain — mania. The reports of superintendents of insane asylums, state that such cases are occasionally sent to these institutions, the patients being thereby exposed to the injury of a journey thither, as well as having failed to receive the treatment which a correct appreciation of the disease might have suggested.

In illustration of the class of cases of which I have been speaking, a summary of the more important points in the history of the single case in the present collection may be interesting.

The patient was a German laborer, aged 27 years. The case was one of those in which the disease was attributed to contagion. Four weeks before being attacked, he had taken charge, at night, of a brother affected with fever. He had slept with him, and labored, as usual, during the day. He was seized with pain in the head, etc., about ten days before entering the hospital. Four days before his admission, he got bled on account of the cephalalgia. The next day he became actively delirious. He had no medical attendance prior to his entering the hospital. These facts pertaining to the previous history were not ascertained until after the decease of the patient. He spoke no English, and, moreover, was incompetent, from the condition of his mind, to give any account of himself. From the resemblance of the delirium to that in the two cases previously observed, and from the associated symptoms, I had no difficulty in arriving at the diagnosis. On his entrance, Oct. 28th, he was actively delirious, constantly talking, and endeavoring to get out of bed. Head was hot, skin warm, tongue (which could but imperfectly be examined) appeared to be dry and hard. Face presented considerable congestive redness, which was also apparent on the upper extremities. Pulse 120, and moderately developed. Abdomen meteorized. He was apparently quite deaf. Did not reply to questions. Eyes not injected.

I had resolved, after observing the two former cases of this variety of the disease, if another instance should ever present itself, to resort to opiates freely, in conjunction with antimony. I accordingly prescribed, in this case, on the first day, S. morphiæ, gr. 1-4 hourly, which was continued until one and a half grains had been taken. Tartrate of antimony was given in doses of gr. 1-8 every half hour, and continued for six hours. This was at evening, when he had just entered. At 10 1-2 P. M., he was sleeping quietly, and he continued to sleep a portion of the night.

On the 29th, the delirium, at morning, was moderate; pulse 108; respirations 18; meteorism, and tenderness in right iliac region; tongue dry and fissured, protruded slowly and incompletely; one copious dejection, not involuntary. The directions for treatment were to apply cold to the head, an emp. vesicat. to nucha, and, if the delirium increased, to resort to morphia and antimony, repeated at short intervals until he became quiet.

30th. The record for this day, made by me, is as follows:—"Passed a wakeful night, with constant, active delirium. His efforts to get out of bed (except during night before last, when he obtained some sleep) have been incessant. He requires constant watching, and occasionally restraint. The expression of the face denotes apprehension, suspicion, and a fixed purpose. Judging from his countenance, and efforts, his impulse is to escape from a situation of imaginary danger. Sometimes he does not reply to questions; sometimes he replies coherently, and sometimes incoherently. He seldom speaks of his own accord, but occasionally talks with a loud voice.

The tongue is dry and hard, and partially protruded, after being requested several times. One copious dejection. Abdomen tympanitic. Perspiration stands in drops on the face, and is moderate over the body and extremities. Pulse 128, small, and feeble. Respirations, 32. Complains of pain in the head. Had passed no urine, and catheter was introduced, drawing off about thirty-two ounces."

During this day, 2 1-2 grains of morphia were administered in hourly doses of gr. *ss.* At 4 1-2 P. M., he was sleeping, and had been quiet for nearly two hours. Respirations, 24, *inspirations shortened and quickened.* Perspiration in drops on the face. Pulse 148, very small and feeble. Abdomen tympanitic. The treatment directed was, morphia, *pro re nata;* camphor, grs. *iis,* dissolved in chloroform, hourly; brandy, ℥*ss.* hourly. He was somnolent most of the night, and died at 7, A. M., the following morning.

The autopsy, performed twelve hours after death, disclosed the characteristic lesions of Peyer's glands, and the mesenteric ganglions; slight sub-arachnoid effusion; about an ounce of serum (estimated) in the arachnoid cavity; moderate congestion of brain; no exudation of fibrin or opacity of arachnoid; cerebral substance normal.

In two of the three cases resembling each other in the predominance of active persistent delirium, post-mortem examinations were made. The appearances in the case in the first collection which was examined, are given in the former Report. In neither were there any appreciable evidences of encephalic inflammation. Indeed, the symptoms are insufficient to sustain the supposition that the delirium is due, in such cases, to an inflammatory condition. The phenomena which are associated with active delirium in encephalitis are not present. In each of the three cases bleeding early in the disease was practiced, but without any relief. The free use of morphia, although it succeeded in overcoming, for a time, the delirium, and inducing quietude and somnolency, exerted no favorable effect upon the issue of the disease.

It is to be observed, that the three cases ended in death. So far as my experience goes, therefore, persistent, violent delirium is to be regarded as a fatal symptom.

The fact should be noted that the case just detailed was of the *Typhoid* type. The three cases were of this type.

In the former Report a few remarks were offered in connection with the inquiry, "upon what pathological condition, or conditions, is delirium in Continued Fever dependent?" Observations have abundantly established, that it is not due to inflammation, and hence, the occurrence of encephalitis, as a complication of the fever, is not to be predicated upon this symptom, however prominent it may be. This is an important practical fact. Is it not frequently overlooked? That this symptom is incident to the morbid condition, whatever it be, which is the essence of Continued Fever, appears to be, as intimated in the former Report, a fair conclusion, in accordance with what may be enunciated as a rule of pathological reasoning, viz., that whenever any symptom, in a large proportion of cases, is observed to be associated with a disease, and found, by a proper analysis of cases, not to be dependent on any of the other appreciable events entering into the history of the disease, it is to be considered as sustaining a direct relation with that which constitutes the *proximate cause* of the disease. If, for example, Continued Fever involves, as its prime, essential morbid condition, a special morbid change in the blood, the delirium, so frequently incident to the progress of the disease, is a result of the circulation of this morbid blood within the brain, and it would be expected, what, as a general rule, is true, that the degree of delirium should correspond with the gravity of the disease.

As regards the mental conditions, irrespective of delirium, in this, as in the former collection of cases, *hebetude* was the prevailing trait. The mind appeared to act slowly and with more or less difficulty. The patients, when awake, took but little notice of what was passing around them; their replies to questions were short; they seldom seemed to manifest a disposition to describe or explain their sensations, and very rarely showed any anxiety as to the issue of the disease. There were considerable variations in the degree of indifference and sluggishness, and, as a general remark, it obtained earlier, and was more marked in cases of *Typhus*, than in those of *Typhoid*. Promptness in comprehending and replying to questions; an increased disposition to make inquiries, to indicate wants, and a returning appreciation of their situation, are among the more obvious of the indications of a favorable change in the progress of the disease.

The statements of fever patients with respect to the events that transpire in the case, from day to day, are not to be relied upon. Their replies to questions may be sufficiently reasonable, but quite the reverse of the truth. For examples, they may say that they have slept well, when the whole night has been passed in busy delirium, and vice versa; they may say they have had dejections from the bowels, when none have occurred, etc. They frequently appear to reply to questions without any reflection, and entirely at hazard. But even if they are stimulated to direct their thoughts to any point, the recollection is apparently unable to discriminate between what has really occurred, and the ideas that have passed through the mind. The memory may be tested by asking the time of the day, the day of the week, when the preceding visit was made, etc. Patients are often wholly unable to answer these questions correctly. It is therefore obvious that histories of cases made up of the statements of patients, would be likely to contain not a little that was erroneous.

Sleep. — A disposition to somnolency was noted in several of the histories, viz., in *thirteen* cases of *Typhoid*, and in *three* cases of *Typhus*. The proportion of cases in which this symptom appears, is considerably less than in the former collection, and, inasmuch as it is seldom stated that the symptom was not present, I am led to think that it may not have been noted save in the cases in which it was more especially marked. In all but *one* case the patients were easily roused, but lapsing into the somnolent state directly afterward. In *five* of the *seven* fatal cases of *Typhoid*, this symptom was present, and, of the *two* excepted cases, in *one* active delirium existed, and in the other case the patient died in apoplectic coma the day after admission. Judging by the results of the present analysis, it would seem that this symptom indicates a severity of disease greater than the average, and this accords with the results obtained by Louis and Jackson.

It is not to be understood that in the cases in which this symptom was present, it continued throughout the febrile career. It was present more or less, in some cases only of temporary duration, and sometimes observed at different periods in the same case.

In *nine* of the *thirteen Typhoid* cases characterized by somnolency, delirium, to a greater or less extent, entered into the history. Patients were sometimes somnolent during the day time, with slight, if any manifestations of delirium, and at night talkative, and attempting to get out of bed.

Delirium, hebetude, and somnolency, which were thus frequently exhibited almost simultaneously in the same case, are probably dependent on a similar morbid condition, each denoting an enfeebled state of the cerebral organs. At the first blush this explanation may not appear to be applicable to delirium, but it will be found to be the most rational view, on a little reflection. The mental aberration in the great majority of cases has been seen to be passive; the manifestations do not display increased energy of mental action, but the patient talks and acts under the influence of dreamy delusions, somewhat as when the brain is oppressed by intoxication carried beyond the bounds of excitement. These delusions are generally not persistent, but constantly varying. The mind has not sufficient strength to preserve the same train of ideas. Hence the incoherent muttering which generally characterizes the delirium. It may be supposed that in the few cases in which the delirium is said to be active or violent, that there must be increased functional activity of the brain, and that these are exceptions to the general rule. The most rational mode of accounting for the character of the delirium in these cases, is, that the insane delusions are of a character to rouse energetic expressions and actions by exciting emotions of apprehension and terror. This being the case, the vigorous and continued efforts of the patient to resist restraint, do not denote increase of nervous power, more than in *delirium tremnes*, to which affection, the mental condition in fever referred to, bears a strong analogy.

The term somnolency, in the foregoing remarks, it will be understood, of course, is not intended to be applied to veritable sleep, but to that state, sometimes called *coma-vigil*, in which the patient lies in a semi-unconscious state, apparently, but not in reality sleeping, from which, usually, he is readily roused, and to which he relapses so soon as the efforts to rouse him are discontinued. With respect to true sleep, the patients were daily asked whether they had slept much, or little, during the night, and their replies recorded. Very little importance, however, is to be attached to the information thus obtained. Patients oftener reported that they had slept well than the reverse, and they frequently made this report when the night had been, in reality, much disturbed. Sometimes want of sleep, and inability to sleep, were the subjects of complaint. This was more apt to be the case when the disease was comparatively mild, and the nights were passed more quietly, and apparently more comfortably than in other instances in which no such complaints were made; the explanation of which probably is, that in such instances the powers of the mind are less compromised, and the patients are able to appreciate causes of discomfort, which, in graver forms of the disease, although existing to a greater extent, do not produce as much conscious impressions, nor are the impressions so well retained in the memory owing to weakness of this retentive faculty.

Coma.—Sudden, or apoplectic coma is an event which occasionally becomes developed in the progress of Continued Fever. It occurred in *four* of the cases first analyzed, but in *one* case only in the present collection, the case ending fatally. In *two* other cases there was an approach to the sudden development of the comatose state.

The following is a condensed history of the case, in the present collection, characterized by the occurrence of complete and fatal coma: — Patrick Enright, Irish, laborer, of good constitution, aged 38, single, entered hospital at noon, Dec. 10. He was attacked four or five days previously, with pains in head, loins, and limbs, which still continue. Has had loss of appetite, great thirst, some nausea and vomiting, bowels moved daily, complained of vigilance. He did not present, on his entrance, high febrile movement; pulse not much accelerated, and was well developed. Tongue moist and coated. Skin warm, and rather dry. At evening he appeared comfortable.

At 1, A. M., the next day, he was found in the following condition, viz. face and upper extremeties covered with cold clammy perspiration; body and lower extremities warm; pulse small and feeble, and accelerated; unconscious; respiration irregular, labored, with puffing of the cheeks in expiration; froth exuding from mouth; difficulty of deglutition.

Sinapisms were applied to extremities, and to nucha; friction with dry mustard to arms; brandy and ammonia, internally, freely administered.

Some improvement in the symptoms followed, which was but temporary, and death occurred at 7, A. M.

The morbid appearances within the brain, fourteen hours after death, consisted in considerable congestion of the veins of the superficies; moderate increase of sub-arachnoid effusion, and about an ounce of serum in the arachnoid cavity. The characteristic intestinal lesions of *Typhoid* fever were present in a marked degree. The kidneys presented some degree of granular degeneration.

It is not easy from these appearances to deduce the explanation of the sudden coma and death. My own impression is, that the symptoms and termination are most rationally accounted for on the supposition of effusion into the arachnoid cavity, as the result, probably, of vascular engorgment, and perhaps a morbid condition of the blood itself. Under this supposition, mechanical compression of the medulla oblongata was the cause of death, and the preceding phenomena. To this lesion, as one liable to occur, and occasion a fatal termination in some cases in which the loss of consciousness, etc., are not developed so suddenly as to constitute apoplectic coma, I shall refer in other connections.

Of the two cases mentioned in which there was an approach to a condition similar to that in the case just given, some account may possess interest. Both cases are included among those of *Doubtful type.* In one case the patient entered on the sixth day after the first symptoms of illness. There were no indications of unusual severity of disease. The day after his admission, in the morning, the symptoms were as follows: — face and hands moderately congested; skin warm and dry; tongue dry and coated, of a dark color; some appetite; much thirst; no dejection, no abdominal tenderness; pulse 104, tolerably developed; no cough, respirations 16; incoherent talking during night; some carphologia this morning; restless, frequently changing his position.

At 6, P. M., copious perspiration, extremities cold and clammy; pulse 140, small and feeble; respirations irregular, catching, and he was supposed to be moribund. Sinapisms were applied, a blister to the nucha, and stimulants (brandy and ammonia) freely administered. Snow was applied to the head. He began to improve at about 10, P. M., and on the day following, the record states that he was rational, skin warm and moist, pulse 88, respirations 12 and regular, etc. Convalescence was soon established.

In the second case, the patient entered on the sixth day after the first symptoms of illness, and presented the symptoms of fever of a moderate grade of intensity. On the evening of the day of his admission, the record states that the respiration became much embarrassed, perspiration copious, and he was nearly comatose. The symptoms more in detail, and the therapeutical measures pursued, are not stated. On the following day he was quite comfortable, pulse 72, skin warm and moist, respirations 16, etc. He reported that he slept well during the night. Convalescence, in this case, was not declared until eight days after admission.

In these two cases there seemed to be an approximation to that condition, suddenly induced, which, in the case previously given, ended in fatal coma. The pathological explanation of the latter is probably measurably applicable to the former. The condition, whatever it be, seems to be analogous to that which in some of the cases was developed more gradually, determining the mode of dying. To these cases reference will be made hereafter.

Cephalalgia.— An examination of the histories of the cases with respect to this symptom confirms the several conclusions stated in the first Report. The presence of the symptom was noted in *fourteen* of the twenty-nine cases of *Typhoid;* in *four* of the ten cases of *Typhus*, and in *six* of the nine cases of *Doubtful type;* that is in *twenty-four* or precisely one-half of the forty-eight cases. This is a statement of the proportion of cases in which the symptom existed after the patients came under observation. It is not a fair illustration of the frequency with which the symptom occurs, for, in most of the cases, the patients were not transferred to the hospital at the very beginning of the febrile career. It is to be borne in mind that, in this enumeration, no reference is made to cephalalgia as entering into the access of the disease, but only to its presence after the febrile career is entered upon, in other words, after the time that the patients took to their beds. Had all the patients been under observation from that period, the proportion of cases in which the symptom was present would doubtless have been larger. It is probable that the cases are few in which it is not present, more or less, in the early part of the febrile career. It almost uniformly disappears after the fever has continued for several days. Hence, in many, if not most of the cases in the histories of which it is not noted, it had doubtless existed, and ceased before the patients came under observation. The duration of the symptom, in the cases, respectively, in the histories of which it was noted, was as follows:

Typhoid.

One day,	Three cases.
Two days,	Three cases.
Three days,	Three cases.
Four days,	Three cases.
A few days,	One case.
On ninth day, and not previously,	One case.

Typhus.

One day,	One case.
Four days,	Two cases.
Five days,	One case

Doubtful Type.

One day,	One case.
Two days,	One case.
Three days,	Two cases.
Four days,	One case.
Few days,	One case.

In but *three* cases is it noted that the headache returned during the career of the fever. In *one* of these cases it was present in a slight degree from the *seventh* to the *tenth* days inclusive. The disease was mild in this case, and accompanied by spinal tenderness. In *one* case it was present from the *thirteenth* to the *seventeenth* days inclusive, but in this case it occurred in connection with external otitis. In the remaining case it occurred on the *twelfth* day, with an aggravation of symptoms after apparent convalescence.

The symptom was present in *five* of the *seven* fatal cases of *Typhoid*, and in *two* of the *two* fatal cases of *Typhus*.

The diminished acuteness of the perceptive faculty, which is incident to Continued Fever after its continuance for a few days, affords an adequate explanation of the fact that cephalalgia belongs only to the early stage of the disease.

So far as deductions are admissible from the small number of *Typhus* cases in this collection, it would seem that this symptom is less frequently present after the fever is established, and its duration less than in the *Typhoid* type.

The records of the cases do not state the severity of the cephalalgia, nor whether it was limited to particular portions of the head, save that in a few instances it is noted that the seat of the pain was in the forehead.

Dizziness, when the head was raised, was complained of in several cases.

In this, as in the former collection, pains elsewhere than in the head were complained of in a very few cases only. The following are all the facts that the histories contain relative thereto:—In *two Typhoid* cases, on the *third* day after admission, complaint was made of pain in the bowels; in *one* case of the same type, pain in the loins on the *second* day; in *one* case do., pain in arms and feet on the *twelfth* and *thirteenth* days; in *one* case, do., pain in limbs and loins on the *second* day; in *one* case, do., pain in the joints on the *sixth* day; and in *one* case, pain in knee and elbow, with spinal tenderness, on the *fourteenth* day.

In *one Typhus* case, pain in the shoulders and hips was complained of on the *fifth* day; and in *one* case of *Doubtful type*, pain in the abdomen on the *second* day.

The interest in this enumeration lies in the small number of cases in which pains were experienced, the shortness of duration of the pains, and their unimportant character. In this, as in the former collection, painful symptoms were recorded only when mentioned by patients of their own accord, or in answer to a general inquiry as to their condition and feelings. Patients were not asked if they had pain in such and such parts. It is probable that to leading questions the replies might have been frequently in the affirmative, but their correctness could not be relied upon, owing to the mental condition in Continued Fever which has been described. It is reasonable to suppose that the absence of painful sensations in other parts of the body than the head, as well as the cessation of pain in the latter situation, does not denote freedom from morbid conditions ordinarily attended with suffering, but *diminished sensibility.*

As respect lesions of sensibility, the foregoing results are quite different from those developed by the numerical investigations of Louis. In a large proportion of the cases of *Typhoid* fever analyzed by that eminent observer, abdominal pains were more or less present. I can only account for this disparity by supposing that in recording histories, Louis interrogated patients specifically for this symptom. I do not doubt that if this course had been pursued with the patients in this, and the former collection, abdominal, and other pains would have been affirmed in a considerable number of cases. The answers would doubtless have been correct in a certain proportion of cases, for patients with fever may really be conscious of pains, which, from the peculiar condition of mind causing a reluctance to make any effort, they do not complain of, or mention, unless their attention is directed to the subject. The results of my analysis, which relate to *subjective* symptoms, it is to be considered, embrace, for the most part, only the instances in which these symptoms were sufficiently prominent to impel patients to speak of them without addressing leading questions. The reason for this is stated in the preceding paragraph.

Eye. The conjunctiva presented increased redness, more or less, in *ten* cases of *Typhoid*, in *three* cases of *Typhus*, and in *four* cases of *Doubtful type*, making, in all, *seventeen* of the *forty-eight* cases.

The proportion of cases in which the presence of this symptom was noted, is somewhat greater than in the first collection, which may be owing to attention having been directed to this point with more care.

Moderate yellowness of the conjunctiva was observed in *two Typhoid* cases.

Deafness. Dullness of the sense of hearing sufficient to constitute noticeable deafness, is noted in the histories of *eighteen* of the *forty-eight* cases, viz., in *ten* cases of *Typhoid*, *five* of *Typhus*, and *three* of *Doubtful type.* It varied in degree, in some cases being considerable, and in other cases slight. It was sometimes the occasion of complaint with patients. When present, it generally made its appearance early, continuing throughout the febrile career, and, occasionally, after convalescence was established.

The proportion of cases in which this symptom was appreciable (as it is not in all cases in which it may be present, for reasons specified in the former Report) differs somewhat, but not greatly in the two collections, the relation being as 18 – 48 is to 24 – 52, or 9 – 24 to 6 – 13. It was present, thus, in *forty-two* of the *one hundred* cases.

In this, as in the first collection, it was present in a larger proportion of the cases of *Typhus*, than in those of *Typhoid*, the relation being as 5 – 10 or 1 – 2, to 10 – 29 or slightly over 1 – 3. In the first collection its relative frequency in the two types was as 5 – 12 to 5 – 18. In this point of view the results of the two analyses show a pretty near correspondence. External otitis, leading to suppuration and purulent discharge from the ear, occurred in *two Typhoid* cases.

Involuntary Muscular Contractions. As in the first collection of cases, the instances in which involuntary muscular contractions attracted notice, are very few. The facts, contained in the histories, are as follows:

Of the *Typhoid* cases, *which ended in recovery*, in *one*, moderate subsultus was observed on the *eleventh* and *fourteenth* days after admission; and in *one*, tremor of facial muscles when the patient spoke, on the *eighth* and *ninth* days. Of the cases of the same type *ending fatally*, in *one*, subsultus on the *second* day, and tremor of the upper extremities on the *fourth* day, which was the day before the death of the patient; in *one*, tremor of the upper extremities on the *twelfth* day.

Of the *Typhus* cases, in *one* case, slight tremor of the body and limbs was observed on the *tenth* day. This case ended in recovery.

Of the cases of *Doubtful type*, in *one*, subsultus was observed on the *eighth* and *ninth* days. This case ended in recovery.

Tonic contraction of muscles, which occurred in a few of the cases analyzed by Louis, and also in those analyzed by Dr. Jackson, of Boston, was not noted in any of the cases included in this or the former collection.

Carphologia. This symptom is mentioned in the history of *two* fatal cases of *Typhoid*, in both of which muscular tremor of the extremities occurred. It is not stated to have occurred in any other cases.

Under the head of *prostration* I have nothing to add to what is said, on this point, in the first Report.

SECTION FIFTH.

Symptoms referable to the Digestive System. Appetite, Thirst, Tongue, Sordes, Parotitis, Nausea, and Vomiting. Alvine dejections, Tympanites, Tenderness of Abdomen, Gurgling. [Page 60.]

Appetite. Of the *forty-eight* cases, the histories are deficient in statements relative to the appetite in *ten*. As respects the remaining *thirty-eight* cases, the patients were asked if they desired, or relished food, and the information thus obtained, noted. In *twenty-seven* the patients declared they had no appetite, whenever asked, which was usually several times during the progress of the disease. Of course the stage of convalescence, and the period just preceding convalescence, are not now referred to, more or less return of appetite almost invariably signalizing a favorable change in the disease tending toward recovery. In *eleven* of the *thirty-eight* cases, the patients said that they had some desire for food, or that the food they received (which was essence of beef, and milk porridge) was acceptable.

With reference to these results some allowance is to be made for the uncertainty which, as has been seen, belongs to all the *subjective* phenomena of the career of Continued Fever. I do not feel sure that the patients always spoke the truth when they said they desired or relished food, but there is no way of disproving or confirming their statements. The results, to say the least, suffice to show that the idea of food does not affect the mind with disgust in all cases of fever. It is probable, indeed, that in a certain proportion of the cases, some appetite was felt. And, again, it is to be considered that the liability to error may apply to the cases in which patients declared they *had not*, as well as to the cases in which they affirmed that they *had* a disposition to take food. It is certain that patients affected with fever, after the disease has continued for some days, do not, in many instances, refuse nutriment, or take it with manifest reluctance. Sometimes, however, there is a strong repugnance to it. It is very rare that they ask for food, even although it may be readily taken when presented. The condition of the mind sufficiently accounts for the latter fact; and it is highly important to bear in mind, that, in so far as willingness to receive food, or even the existence of appetite, should have an influence on the propriety of administering nourishment, we must act without waiting for any spontaneous expressions on the part of the patient. The mind does not take that cognizance of the instinctive wants of the system which belongs to health. This is evidenced by various other particulars.

The presence of appetite is noted in a very much larger proportion of cases of the *Typhus* than of the *Typhoid* type. Excluding *three* cases in which nothing is noted on this point, of the *seven* remaining cases of *Typhus*, in *five* the patients said that they relished or desired food.

Thirst. In *ten* cases the histories do not state either the presence or absence of this symptom. Of the *thirty-eight* remaining cases, it existed to a greater or less extent. In *nineteen* of these cases the thirst was great during the early part of the febrile career. In a few cases it continued to be a prominent symptom throughout the disease, but generally, although intense at first, it lessened as the disease advanced. In some cases it was present only for the first few days. In only *one* case is it stated that there did not exist thirst at first, and in this case it became developed afterward. Information respecting this symptom, was obtained by questioning the patients, but frequently patients asked for drink, and complained of suffering from this source. This was true more especially at the early part of the disease, and, afterward, as I often noticed, although patients did not, of their own accord, indicate their desire for drink, if offered to them it was eagerly taken.

Thirst is, thus, a pretty constant symptom, more marked at the commencement of the febrile career, diminishing, or ceasing as the disease progresses, which, in part, at least, is probably in consequence of the bluntness of perceptions, the consciousness of the morbid condition upon which it depends being thereby impaired.

Tongue. In no instance did the tongue preserve a normal aspect throughout the disease. The morbid appearances were varied, not only in different cases, but at different periods in the same cases. Without investigating the connections which these appearances had with other symptoms, with a view to determine, by that mode, the pathological significance and value which belong to them respectively, as was done in the former analysis, I will simply give enumerations of the cases in which the more prominent appearances were observed, bringing into comparison the different types, and the results in the two analyses. The appearances of the tongue were noted in all cases but one; that is in *forty-seven* cases.

Dryness of the superior surface of the organ, more or less in degree, extent, and duration, was noted in the histories of *twenty* cases of *Typhoid*, *eight* cases of *Typhus*, and *six* cases of *Doubtful type;* in all, *thirty-four*, of *forty-seven* cases. The first analysis gave this symptom in *thirty-six* of *fifty* cases. In both collections *seventy*, of *ninety-seven* cases.

There was notable resistance to the touch, or hardness of the superior surface, in *ten* cases of *Typhoid*, in *two* cases of *Typhus*, and in *two* cases of *Doubtful type;* in all, *fourteen*, of *forty-seven* cases. The first analysis gave this appearance in *ten*, of *fifty* cases. In both collections, *twenty-four*, of *ninety-seven* cases.

The dryness was rarely observed at the early part of the febrile career, and was generally either confined to, or more marked on a central strip of the surface of the organ. It existed in every fatal case save one, and in the excepted case, the patient died suddenly, with apoplectic coma, the second ay after coming under observation.

Coating, varying in thickness, color, and continuance, was present in *twenty-seven* cases of *Typhoid*, in *ten* cases of *Typhus*, and in *eight* cases of *Doubtful type;* in all, *forty-five*, of *forty-seven* cases. The first analysis gave *forty-seven* of *fifty* cases. In both collections, *ninety-two*, of *ninety-seven* cases. The color of the coating is not generally mentioned. It is stated to have been *dark* in *two* cases only, in both of which the disease ended favorably.

A *scabby* appearance was presented in *four* cases of *Typhoid*, in *one* case of *Typhus*, and in no case of *Doubtful type;* in all, *five*, of *forty-seven* cases. The first analysis gave *four*, of *fifty* cases. In both collections, *nine*, of *ninety-seven* cases. The surface exhibited fissures, or cracks, in *five* cases of *Typhoid*, in *one* case of *Typhus*, and *one* case of *Doubtful type;* in all, *seven*, of *forty-seven* cases. The first analysis gave *four*, of *fifty* cases. In both collections, *eleven*, of *ninety-seven* cases.

It had a very *smooth*, or *glazed* appearance in *three* cases of *Typhoid*, in *one* case of *Typhus*, and in no case of *Doubtful type;* in all, *four*, of *forty-seven* cases. The first analysis gave *five*, of *fifty* cases. In both collections *nine*, of *ninety-seven* cases.

A *reddened* aspect is noted in the history of *four* cases, all cases of *Typhoid*. The first analysis gave *eight* cases, all of the *Typhoid* type. In both collections, *twelve*, of *ninety-seven* cases.

Great difficulty in protruding the tongue existed in *three* cases of *Typhoid*, in *two* cases of *Typhus*, and in no case of *Doubtful type;* in all, *five* of *forty-seven* cases. The first analysis gave *six*, of *fifty* cases. In both collections, *eleven*, of *ninety-seven* cases. In each of the cases in this collection, in which great difficulty in protruding the tongue was noted, the disease proved fatal.

As respects any striking points of distinction between the two types, *Typhoid* and *Typhus*, these results are negative. The only feature which would appear, from my observations, to have any bearing on the diagnosis, is redness of the tongue. This was observed in a small proportion of the cases of *Typhoid* in both collections, and in not a single case of *Typhus*.

The comparison of the results in the two analyses, for the most part exhibits a similarity which is worthy of remark, as evidence that symptoms which, at first view, appear so uncertain, and, as it were, accidental, as the different appearances of the tongue, are, nevertheless, restricted in the frequency of their occurrence within certain numerical limits.

As already stated, the tongue frequently presented, in individual cases, during the progress of the disease, more or less of the various appearances that have been mentioned. The general facts with respect to this point, which were stated in the former Report, are equally applicable to the present collection of cases. In order, however, to illustrate the manner in which these appearances occur in succession in Continued Fever, I will give in a tabular form, the facts pertaining to the tongue as daily noted in the histories of *six* cases of either type, selecting one-half from the cases ending favorably, and the other half from those which were fatal.

In the following table the cases selected are placed in the separate columns numbered 1, 2, 3, etc., and the appearances noted on every day of the disease, in each case, are given in the column assigned to that case:

TABLE SHOWING THE APPEARANCES OF THE TONGUE IN SIX CASES OF *TYPHOID* FEVER ON DIFFERENT DAYS DURING THE PROGRESS OF THE DISEASE.

No. Days.	Case No. 1, recovered.	No. 2, fatal.	No. 3, recovered.	No. 4, fatal.	No. 5, recovered.	No. 6, fatal.
Day 1.	Moist and furred.	Not noted.	Dry and coated in centre, moist and clean at sides.	Dry and coated.	Moist and thinly coated.	Moist and clean.
" 2.	Moist and furred.	Moist and coated, except at tip.	Dry and thickly coated, hard in centre, moist and clean at sides.	Coated, protruded slowly, tremulous, dry at tip, moist at base.	The same.	Moist and thinly coated.
" 3.	Moist, white coating, reddened at tip and sides.	The same.	Dry, hard, and scabby, in centre, moist at sides.	Dry and coated, protruded with difficulty.	The same.	Dry and reddened.
" 4.	Coated at base, and clean at sides and tip.	Moist and coated, and reddened at tip and sides.	Coated, hard, and fissured at centre, moist at sides.	Dry and smooth, coated in centre, moist at sides.	Coated and rather dry.	Dry and hard in centre, moist at sides.
" 5.	Thinly coated at base, smooth and glazed towards tip, dry in centre.	Coated, dry and scabby.	Moist and coated.	Protruded readily, dry, cracked, thin coating.	Moist and coated.	Dry, hard and coated in centre, moist at sides.
" 6.	Moist, and covered with loose, thick, scabby coating.	Dry, hard and scabby.	Coated and dry, and fissured at centre, moist and furred at sides.	Died.	Moist and coated.	The same.
" 7.	Moist, loose coating at centre, clean at sides.	Moist, thickly coated at base, clean at sides, reddened at tip.	Dry and fissured at tip, moist at base and sides.		Moist and clean except at base.	The same.
" 8.	Moist, heavily coated.	Heavily coated except a small space at tip.	Cleaning.			Moist and thinly coated.
" 9.	Dry and coated at centre, moist at sides.	Not noted.	Not noted.			Dry and thinly coated.
" 10.	Coated and Dry.	Less dry and coated.	Moist and furred.			Moist and furred.
" 11.	Moist and coated.	Dry and coated.	Moist and cleaning.			Dry, coated and hard in centre, moist at sides.
" 12.	Dry and fissured, coated and hard at centre, moist and clean at sides.	Cleaning.				Coated dry, hard in centre and fissured, moist at sides.
" 13.	Dry, coated, hard and fissured.	Nearly clean, somewhat reddened.				Moist and coated.
" 14.	Rather dry, fissured.	Moist, reddened, and somewhat coated.				Dry at centre, moist at sides.
" 15.	Clean, moist and fissured.	Died.				Dry and fissured at centre, moist at sides, (intestinal perforation.)
" 16.	Moist and clean.					The same.
" 17.	Clean.					Died.

TABLE SHOWING THE APPEARANCES OF THE TONGUE IN SIX CASES OF *TYPHUS* FEVER ON DIFFERENT DAYS DURING THE PROGRESS OF THE DISEASE.

No. Days.	No. 1, recovered.	No. 2, fatal.	No. 3, recovered.	No. 4, fatal.	No. 5. recovered.	No. 6, fatal.
Day 1.	Moist and coated.	Could not be made to protrude the tongue.	Moist and coated.	Not noted.	Not noted.	Dry and coated.
" 2.	The same.	Not noted.	Moist and thinly coated.	Moist and thinly coated.	Not noted.	The same.
" 3.	Coated and dry.	Moist, thin white coating, several superficial ulcerations.	Moist.	Moist and furred.	Moist and coated.	Moist and nearly clean.
" 4.	Coated and dry.	Same appearances, protruded quickly.	Moist and thinly coated.	Moist and coated.	Moist and thickly coated	Clean and somewhat dry.
" 5.	Moist, coated, dark.	Not noted.	Moist and cleaning.	Dry and furred.	Moist and coated yellow	Thinly coated dry in centre.
" 6.	Same appearances.	Not noted.	Moist.	Moist and thinly coated.	Dry in centre.	Moist and thinly coated.
" 7.	Same appearances.	Moist and furred, protruded readily.		Same appearances.	The same.	Clean, dry, and somewhat fissured.
" 8.	Moist and nearly clean.	Moist and furred.		Same appearances.	Dry and hard in centre.	Clean and somewhat dry.
" 9.	Not noted.	Moist, thinly coated.		Same.	Not noted.	Died.
" 10.	Moist and lightly coated.	The same.		Dry and hard.	Moist and furred.	
" 11.		Dry in centre, moist at sides.		Smooth, clean, and dry.		
" 12.		Moist and furred.		Moist and furred.		
" 13.		The same. Dysenteric symptoms supervened, and death on the 52d day.		Dry and hard. Died.		
" 14.						
" 15.						
" 16.						

So far as the facts contained in the present collection of cases are developed, they go to confirm the correctness of the general conclusions submitted in the former Report, with respect to the importance of the tongue in furnishing indications in Continued Fever. The special attention bestowed, by some practitioners, on the various appearances which this organ assumes during the progress of the disease, and the significance attached to these appearances in the prognosis, and treatment, are, for the most part, based on notions purely speculative.

Sordes. The presence of this symptom is noted in the histories of *seventeen* of *forty-seven* cases in which the record of the phenomena pertaining to the digestive system is presumed to be complete. The first analysis gave *fourteen*, of *fifty-two* cases. In both collections, therefore, it was present in *thirty-one*, of *ninety-nine* cases.

The symptom was present in each of the fatal cases of *Typhus*, viz., in *four*, and in *four* of the *seven* fatal cases of *Typhoid;* in all, *eight*, of *eleven* cases. Thus, the proportion of cases in which it was observed that ended fatally, is as *eight* to *seventeen*, and, in the first collection, as *three* to *seven.*

Of the *seventeen* cases in which it is noted to have occurred, *ten* were cases of *Typhoid*, *six* were cases of *Typhus*, and in *one* the type was *Doubtful.* It was present, thus, in a larger ratio in the cases of *Typhus* than in those of *Typhoid.*

The periods in the disease, dating from the time the patients entered the hospital (which it is to be borne in mind was very rarely at the commencement of the disease), when sordes was first observed, in the cases respectively, are as follows:

Typhoid.	
Second day,	Two cases.
Fourth day,	One case.
Fifth day,	Two cases.
Sixth day,	Three cases.
Fourteenth day,	One case.
Fifteenth day,	One case.
Typhus.	
First day,	One case.
Third day,	Two cases.
Eighth day,	Two cases.
Tenth day,	One case.
Doubtful Type.	
Fifth day,	One case.

It is evident that sordes denotes a certain degree of gravity of disease, for it is not observed in mild cases, and is present in a proportion of the cases which prove fatal, considerably larger than in those which end in recovery. Nevertheless, it occurs not unfrequently in cases which recover, and is by no means present in all cases that are fatal. Hence, an unfavorable prognosis is not to be based on its presence, nor a favorable prognosis on its absence, although, in estimating the probabilities of the issue of the disease, the symptom is not without weight.

Hæmorrhage from the gums. This symptom is noted in the histories of *two* cases, the same number as in the first collection. In *one* case the disease was *Typhoid*, and in the *other* case the type was *Doubtful.* It occurred in the former case on the *fifth* day after the patient entered the hospital, and continued until the *eighth* day. The case became complicated with pneumonitis. The disease was not very severe, convalescence being pronounced on the *sixteenth* day after admission, and the *twenty-sixth* after the date of attack. In the latter case the hæmorrhage occurred on the *third* day after admission, and is only noted to have occurred on that day. Convalescence was pronounced in this case, on the *eighth* day after admission, and the *fourteenth* after the date of attack. In the first case petechiæ occurred on the abdomen and limbs, being intermingled, in the former situation, with the characteristic rose eruption. The petechiæ were true ecchymoses, not the maculæ of *Typhus.*

Inasmuch as in *three* of the *four* cases in which, in both collections, this symptom was observed, the disease terminated in recovery, it is to be inferred that its occurrence need not affect unfavorably the prognosis.

An *herpetic eruption about the mouth*, is noted in the histories of *three* cases, viz., *two* of *Typhus*, and *one* of *Typhoid.*

Parotiditis. This complication did not occur in any case. In this respect a comparison of the two collections exhibits a striking contrast, the first analysis having given *five* cases. These results go to show that parotiditis is not to be regarded as an intrinsic element of the disease, but one of the events which are due to certain special tendencies incident to the disease at particular times or places — tendencies, the nature and source of which are not susceptible of explanation with our present knowledge of the pathology of fever.

Nausea and vomiting. The occurrence of *vomiting* appears in the histories of *thirteen*, of *forty-seven* cases in which the record of the symptoms referable to the digestive system is presumed to be complete. Nausea, without vomiting, is noted in the histories of *four* cases. This proportion of cases is larger than in the first collection, in which vomiting occurred in *nine*, of

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Typhoid.

Second day,	Two cases.
Fourth day,	One case.
Fifth day,	Two cases.
Sixth day,	Three cases.
Fourteenth day,	One case.
Fifteenth day,	One case.

Typhus.

First day,	One case.
Third day,	Two cases.
Eighth day,	Two cases.
Tenth day,	One case.

Doubtful Type.

Fifth day,	One case.

It is evident that sordes denotes a certain degree of gravity of disease, for it is not observed in mild cases, and is present in a proportion of the cases which prove fatal, considerably larger than in those which end in recovery. Nevertheless, it occurs not unfrequently in cases which recover, and is by no means present in all cases that are fatal. Hence, an unfavorable prognosis is not to be based on its presence, nor a favorable prognosis on its absence, although, in estimating the probabilities of the issue of the disease, the symptom is not without weight.

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An *herpetic eruption about the mouth,* is noted in the histories of *three* cases, viz., *two* of *Typhus,* and *one* of *Typhoid.*

Parotiditis. This complication did not occur in any case. In this respect a comparison of the two collections exhibits a striking contrast, the first analysis having given *five* cases. These results go to show that parotiditis is not to be regarded as an intrinsic element of the disease, but one of the events which are due to certain special tendencies incident to the disease at particular times or places — tendencies, the nature and source of which are not susceptible of explanation with our present knowledge of the pathology of fever.

Nausea and vomiting. The occurrence of *vomiting* appears in the histories of *thirteen,* of *forty-seven* cases in which the record of the symptoms referable to the digestive system is presumed to be complete. Nausea, without vomiting, is noted in the histories of *four* cases. This proportion of cases is larger than in the first collection, in which vomiting occurred in *nine,* of *fifty-two* cases. In the two collections this symptom occurred in *twenty-two*, of *ninety-nine* cases. In these enumerations the access, or forming stage of the disease is excluded, and, also, the period of the disease prior to the patient's coming under observation. With the exception of *one* case, it was not a prominent symptom, and, in the excepted case, it was not very prominent. In *four* of the cases in which it occurred the disease proved fatal. Of the *thirteen* cases, *eleven* were cases of *Typhoid*, *one* was a case of *Typhus*, and *one* a case of *Doubtful type.* Its relative occurrence was therefore greater in *Typhoid* than in *Typhus.* This was true, also, in the first collection.

The periods in the progress of the disease, at which the nausea or vomiting occurred, are as follows:

Typhoid.

Case 1. Vomited yellowish and greenish fluid day before death.
" 2. Vomited yellowish fluid on fourth day.
" 3. Nausea on the first and fourth days.
" 4. Vomited twice fourth day, and once seventh day.
" 5. Vomited once, after drinking freely of tea, on the fourth day.
" 6. Vomited once second, ninth, and tenth days; nausea eleventh and twelfth days; vomited thirteenth day. Rather a prominent symptom in this case.
" 7. Vomited first day.
" 8. Vomited fourth and fifth days.
" 9. Vomited seventh day, after taking porridge.
" 10. Nausea first day.
" 11. Vomited second day, after drinking.
" 12. Vomited first, second, third, and fifth days.
" 13. Nausea sixth day.
" 14. Vomited seventh day.

Typhus.

Case 1. Vomited fourth day.
" 2. Nausea fourth day.

Doubtful Type.

Case 1. Vomited twice during the first six days.

The days in the foregoing list are dated from the time the patients entered the hospital, not from the commencement of the disease.

The facts pertaining to this point show, that, during the febrile career, nausea and vomiting not only are absent in the majority of cases, but they are unimportant as symptoms, occurring at irregular periods, very seldom recurring, or persisting, and possessing no special significance.

Alvine discharges. Typhoid. Diarrhœa, more or less in degree, and duration, was present in *fourteen* of the the *twenty-nine Typhoid* cases. This result is as near as possible to that developed by the analysis of the hospital *Typhoid* cases in the first collection, which was *nine*, of *eighteen* cases. The two results could not approximate more closely without the division of a patient into halves!

The diarrhœa was mild, or slight in degree in all but *four* cases. This was the fact in the hospital *Typhoid* cases in the first collection, in all but *two* cases, the relation thus in both collections to each other being as 4 – 14, or 2 – 7, is to 2 – 9.

It was only present in the early part of the febrile career in *four* cases. This was the fact in the hospital *Typhoid* cases in the first collection in *three* cases, the relation in both collections thus being as 4 – 14 or 2 – 7, is to 3 – 9 or 1 – 3.

It was only present in the latter part of the career in *two* cases, one of which was fatal. This was the fact in the hospital *Typhoid* cases in the first collection in but *one* case; the relation thus being as 2 – 14 or 1 – 7, to 1 – 9.

It existed moderately through the febrile career in *six* cases. This was the fact in the hospital *Typhoid* cases in the first collection in *five* cases; the relation thus being as 6 – 14 or 3 – 7, is to 5 – 9.

Of the *seven* fatal *Typhoid* cases it was present in *three*. In the *four* hospital *Typhoid* cases in the first collection which proved fatal, it was present in *two*; the relation thus being as 2 – 4 or 1 – 2, is to 3 – 7.

Typhus. Diarrhœa was present in but *three* of the *ten* cases of *Typhus*. Of the *twelve* hospital cases in the first collection it was present in *four*; the relation thus being as 3 – 10, is to 4 – 12 or 1 – 3. In each of the three cases in which it was present, it was exceedingly mild in degree, and of short duration. In *one* of these cases it was only present on the day of admission, *four* dejections occurring on that day, and this may possibly have been the operation of a cathartic taken before entering the hospital. In another of the cases it consisted of *two* daily dejections on the second and third days after admission. In the remaining case it consisted of *two* daily dejections on the fifth, sixth, and seventh days after admission.

Each of these *three* cases of *Typhus* terminated fatally. Mild diarrhœa, therefore, existed in *three* of the *four* fatal cases of *Typhus*. Of the *two* fatal cases of *Typhus* in the first collection, diarrhœa was not present in either.

The term diarrhœa is used here in the same sense as before, viz., meaning too frequent, and liquid dejections.

It is also to be recollected that these enumerations embrace only the career of the fever, exclusive of the access, or forming stage.

As respects this symptom, the two types, *Typhus* and *Typhoid*, exhibit a striking disparity; for, while in the *forty-seven* hospital *Typhoid* cases in both collections diarrhœa was present in *twenty-three*, or in the proportion of about *one-half*, in the *twenty-two* hospital cases of *Typhus* it existed in only *seven*, or in the proportion of about *one-third*. Moreover, it was universally very mild, or slight in the cases of *Typhus* in which it was present, while this was not true of all the cases of *Typhoid* into the histories of which it entered. A greater liability to the occurrence of diarrhœa, and its greater prominence as a symptom, are generally recognized as constituting one of the diagnostic features of *Typhoid* considered in contrast with *Typhus*, and it is to be remarked that in the grouping of the cases for these analyses more or less importance was attached to the presence or absence of this event.

Constipation. With reference to the facts pertaining to the alvine evacuations, it is particularly important to state that, with a very few exceptions, probably not more than three or four instances, no cathartic or laxative medicines were administered in the cases under analysis. The same statement will apply, nearly, if not quite as fully, to the hospital cases formerly analyzed. Consequently, the conditions of the bowels, as respects frequency of the dejections, and other symptoms, are such as belong to the disease uninfluenced by the remedies just mentioned. Enemas were occasionally employed, but these not often. Sometimes it happened that no dejections occurred for a longer period than would perhaps have been deemed advisable had the attention been more closely directed to this point, and pains always taken in individual cases, while they were in progress, to ascertain how many days had passed without an evacuation. The facts contained in the histories relative to constipation are not without interest and importance, and will doubtless strike the minds of some of my readers with surprise. I will give a synopsis of the histories, so far as the dejections are concerned, in several cases of the *Typhoid* and *Typhus* types, which were characterized by constipation.

Typhoid. *Case* 1. In this case the bowels remained quiescent for *five* days, and on the sixth day were moved by a simple enema. They were not moved for the *three* following days, when a single dejection occurred spontaneously. On the second day afterward, *three* or *four* dejections took place, and the following day *two;* the next day, none, and the next day, *one*, convalescence being then pronounced.

Case 2. In this case it is not stated whether the bowels were moved on the day of admission, or not; but no evacuation occurred subsequently for *six* days. On the eighth day after admission an evacuation occurred spontaneously; the ninth day, no dejection; on the tenth day, two dejections; on the eleventh and twelfth days, each, one dejection, the patient now being convalescent.

Case 3. In this case the bowels had not moved for *three* days prior to admission. They remained quiescent for *two* days after admission, and moved spontaneously on the *third* day, i. e., on the *sixth* day after the last preceding movement. On the day following, another dejection occurred, which was moulded, and perfectly natural in appearance — a phenomenon which is not likely to fall under the observation of practitioners who are accustomed to administer cathartics daily, or every other day, during the progress of the disease!

Case 4. In this case diarrhœa existed on the day of admission, several evacuations occurring on that day; afterward, no dejections occurred for *two* days, none are noted on the *third* day, none occurred on the *fourth* day, none are noted on the *fifth* day, and none occurred on the *sixth* day. On the *seventh* day an evacuation took place spontaneously. The next day, no dejection. The next day, one dejection. The next day, none. The next day, one. The two following days, none. The next day, two or three, and at this time convalescence was established.

Case 5. In this case one dejection occurred on the day of admission. Subsequently no dejection occurred for *six* days. On the *seventh* day there were two dejections, convalescence being at this time established.

It will be observed, that in each of the foregoing cases, the disease ended favorably, and, it should be added, that in none of the fatal cases was constipation present.

Typhus. *Case* 1. In this case, after the first day in hospital, on which there was one dejection, the bowels remained unmoved for *four* days. On the *fifth* day a stool occurred, the feces being moulded and natural; a single dejection occurred on each of the succeeding days, convalescence being pronounced on the following day.

Case 2. In this case no evacuation took place until the *fifth* day, when there were two dejections. On the two following days there was no dejection; on the next day none was noted; on each of the two following days, one dejection; on the next day one, and on the day following, two, convalescence being established.

Case 3. In this case no evacuation took place for the first *five* days in hospital. On the *sixth* day it is not noted whether the bowels were moved or not. On the *seventh* day there was no dejection. On the *eighth* day there was no dejection. In this case the patient was pronounced convalescent, but subsequently dysentery supervened, which proved fatal on the fifty-second day after admission. This is the only fatal case in which the bowels were permitted to remain unmoved for several days in succession.

I shall not deduce from the foregoing facts the conclusions that cases of fever are more likely to terminate favorably in which constipation exists, and that it is injudicious to interfere with this condition even if the bowels do not move for six, seven, or eight days. It is by no means claimed that the facts are sufficient to authorize these conclusions. It may, however, be fairly inferred that constipation is not generally attended with any unpleasant consequences, and does not appear to affect unfavorably the course of the disease. This inference would involve, as a corollary, that the practice of administering cathartics and laxatives in Continued Fever is not so necessary, or useful, as is by most practitioners supposed. Whether the practice be pernicious, or the extent to which it is so, must be settled by farther observations. As a general maxim in therapeutics, it is certainly true that active remedies which are uncalled for, and useless, are, in proportion to their activity, hurtful; but I am not prepared to say that, in my opinion, this maxim is applicable to the point under consideration. Cathartics, or laxatives, may be required under certain conditions, when, in general, they may be needless, and even pernicious. It would be out of place to discuss this topic in the present connection. I will only add, that the practical rule pursued in the treatment of the cases under analysis was, not to prescribe remedies of this class so long as, on exploration of the abdomen, there appeared to be no evidences that the patient was suffering from undue retention of the excrement.

Hæmorrhage from the Bowels. This symptom is not noted to have occurred in any case. In the first collection it was present in *two* cases, both of the *Typhoid* type.

Tympanites. Typhoid. Tympanites, meteorism, or visible enlargement of the abdomen from an accumulation of gas, is noticed in the histories of *twenty-two* cases. The first analysis gave, of *eighteen* hospital *Typhoid* cases, this symptom in *twelve*. The relation in the two collections, therefore, is as 22 – 39 is to 12 – 18; and, in both collections, the symptom was present in *thirty-four*, of *forty-seven* cases. The tympanitic distension was *slight* in *five* cases, *moderate* in *thirteen*, and *considerable* in *four*; it would not be termed very great in degree in any case. These results accord with those developed by the first analysis.

Typhus. Of the *ten* cases of *Typhus*, tympanites was present in *eight.* In the first collection, of *twelve* hospital cases, it existed in *eight.*

It was *slight* in every case but one, and in the excepted case was *considerable.* There was evidently a disparity in the *degree of tympanites*, in the cases belonging to the two types; in all the cases, save *one*, of *Typhus*, the symptom was less marked than in all the cases, save *five*, of *Typhoid* in which it was present. The first analysis showed the same disparity.

As respects the relative frequency of this symptom in the two types, in the first collection, the proportion of instances in which it was present *in the hospital cases*, was found to be exactly equal. The result, in the present collection, is not far from this, the proportion in the *Typhus* cases being larger by a small fraction. If the comparison be made with all the cases in the first collection, i. e., including the cases in private practice, with those in hospital, the results in both approximate still more closely, the *Typhus* cases in both having the symptom present in a slight fractional preponderance.

In the first Report I have expressed surprise at the fact of tympanites being found to be present in an equal ratio, or nearly so, in the two types. The symptom is considered somewhat distinctive of *Typhoid.* It is said to be very rare in *Typhus.* Entertaining this impression, I had thought that the facts contained in the first collection might have been affected by some peculiar circumstances, and that had the number of cases been much larger, the results would perhaps have been different. The similarity in the results of the two analyses, as respects this symptom, is thus worthy of particular note.

It is not to be overlooked that, in so far as my observations go, tympanites is less prominent as a symptom in the great majority of cases of *Typhus*, than in those of *Typhoid.* In this point of view the symptom furnishes a diagnostic feature of importance.

Examining the cases to ascertain the relation which this symptom sustains to *diarrhœa*, I find that of the *twenty-two* cases of *Typhoid* in which tympanites was present, diarrhœa co-existed in *six*, and was absent in *sixteen.* Diarrhœa consequently existed without tympanites in several instances. Of the *eight* cases of *Typhus* in which tympanites was present, diarrhœa co-existed in *three*, and was absent in *five.* The first analysis gave, of the *hospital Typhoid* cases, the presence of diarrhœa with tympanites in *eight*, and the existence of tympanites without diarrhœa in *four;* and of the *hospital Typhus* cases the co-existence of tympanites and diarrhœa in no case, in other words the absence of diarrhœa in every case in which tympanites was present. The results of the two analyses, as respects this point, are far from exhibiting uniformity, which goes the more to show that two symptoms, tympanites and diarrhœa, have little or no mutual dependence or connection.

With a view to the bearing of tympanites on the prognosis, it should not be omitted to state the proportion of cases in which it was present among those ending fatally. Of the *seven* fatal cases of *Typhoid*, it was present in *six*, and in the excepted case the patient died, the second day after admission, with apoplectic coma. It existed in a *slight* degree in *one* case, it was *moderate* in *three*, and *considerable* in *two* cases. Of the *four* fatal *Typhus* cases, it was present in *three;* being *slight* in each. These results are precisely the same as in the first analysis. They show that the symptom occurs in a much larger proportion of the cases ending fatally, than of those in which recovery takes place. It is therefore, to a certain extent, a favorable indication when tympanites is not present.

Abdominal tenderness. More or less tenderness on pressure over the abdomen, was present during a part, or the whole of the febrile career, in *twenty-five* of the *twenty-nine Typhoid* cases, and in *five* of the *ten* cases of *Typhus.* As respects this symptom, thus, a point of contrast is afforded on comparison of the two types, it existing in by far the larger proportion of cases in *Typhoid.*

In degree it was either *slight* or *moderate* in all the *Typhoid* cases, excepting *two* in which peritonitis became developed after perforation of the intestine. It was *slight* in all the *Typhus* cases. It is evident from the histories that the degree of tenderness was less in all the cases of *Typhus* in which it was present, than in a large proportion of the cases of *Typhoid.* This symptom appears in the histories of the cases in this collection, in a larger ratio, in either type, than was developed by the first analysis. The latter gave it in *twelve*, of *eighteen hospital* cases of *Typhoid*, and, in *five*, of *twelve hospital* cases of *Typhus.* There is some room for error in determining the presence or absence of this symptom, as there is in all the *subjective* phenomena belonging to the history of Continued Fever. This may possibly account for the disparity in the results of the two analyses. The facts in both collections, however, authorize the deductions, which, for all practical purposes are sufficient, that more or less tenderness over the abdomen is a symptom belonging to both types of fever, but that it exists much oftener in *Typhoid* than *Typhus;* and that it is more or less prominent, as a symptom, in the former, while it is always slight in the latter.

The *tenderness* co-existed with *diarrhœa* in only *eight* cases of *Typhoid*, and in *two* cases of *Typhus.* This shows the absence of any relation between these symptoms.

It was associated with more or less meteorism in a large proportion of cases, viz., in *twenty* cases of *Typhoid*, and in *all* the cases (5) in which it was present in *Typhus*, i. e. in *twenty-five* of the *thirty* cases of both types in which tenderness existed. It would appear, therefore, that while the tenderness is not dependent on the presence of diarrhœa, it does sustain some connection with the meteoric distension of the abdomen. This would be the inference from the analysis of the present collection of cases; a different conclusion, however, was deduced from the results* of the first analysis. That analysis gave the co-existence of tympanites in but *ten* of *nineteen Typhoid* cases, and in *four* of *six Typhus* cases in which tenderness was present. This disparity in the results of the two analyses, and in the deduction based thereupon, shows the liability to error in numerical investigations from insufficient data. Expressed in figures, the relation of the two collections in this particular is as 14 – 25 to 25 – 30; the two symptoms thus co-existing in a proportion of a little over one-half in the first collection, and of more than two-thirds in the second. Adding together the cases in both collections, tenderness co-existed with tympanites in *thirty-nine*, of *fifty-five* cases. It is to be remarked, that the disparity of the results of the two analyses with respect to this point, is, in a measure, explicable by the fact that, in the present collection of cases, both tenderness and tympanites were found to be present in a larger relative number of cases than in the first collection. This would lead us to expect that the instances in which the two symptoms concurred would be more numerous. In conclusion, as regards the connection between the symptoms, the inferences from the facts enumerated in the first Report must be considered correct.

The situation in which the abdominal tenderness was more marked, or to which it was limited, is stated in the histories of all the cases, save two, in which the symptom was present. Of *twenty-four* cases of *Typhoid*, it was limited to, or more marked in the *right iliac* region in *twenty*. It was limited to, or especially marked in *both iliac* regions in *two* cases. Of the *five Typhus* cases, the tenderness was limited to, or more marked in the *right iliac* region, in *three*.

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* On reference to this section of the former Report with a view to comparing the results, I find a typographical error in the figures, which, until now, had escaped notice. The error is obvious on comparing the summing up of the cases in which tenderness was present without tympanites, with the enumerations that have preceded. The reader is requested to correct the error in the first Report as follows: on page 86, line 7, *ten* should read *nine*, and the second *ten* should read *two*.

Tenderness over the Epigastric region was noted in the histories of *six* cases of *Typhoid*, and in *two* cases of *Typhus*. I have examined the histories of these cases to ascertain if, at the time the tenderness over the epigastrium was noted, there co-existed any gastric symptoms. The following are the facts with reference to this point: of the *six* cases of *Typhoid*, in *four*, *vomiting* appears among the symptoms recorded in connection with the epigastric tenderness; in *one*, *nausea*, without vomiting, co-existed; and in the remaining case, vomiting existed prior and subsequent to the tenderness being observed, but it was not noted in conjunction. Of the *two Typhus* cases, *vomiting* is not noted in the histories at any period of the febrile career. *Thirst* was present at the same time with tenderness in *four*, of the *six Typhoid* cases; in another case it had existed the day but one before the existence of tenderness is noted, and in the remaining case it was not present. In neither of the *two* cases of *Typhus* was *thirst* present.

Perforation of Intestine. This event occurred in one case, as was demonstrated after death, and was presumed, from the symptoms, to have occurred in another fatal case in which no autopsy was made. Both were cases of the *Typhoid* type. It did not occur in any of the cases before analyzed. Its numerical relation to the whole number of cases in both collections is, therefore, as *two* to *one hundred;* and to the whole number of cases of the *Typhoid* type, as *two* to *fifty-nine*.

In the first of the two cases mentioned, the perforation occurred on the sixteenth day after the admission of the patient. The fever had existed for several days before the patient entered the hospital. The disease was of about medium severity, and at the time of the perforation, the symptoms had exhibited improvement, and convalescence was apparently approaching. The case was complicated with pneumonitis.

On the morning of the day on which the perforation took place, the pulse was 108, and moderately developed. Skin warm and moist. She reported feeling comfortable. Cough diminished. Considerable tenderness of abdomen; two dejections, etc. At 12, noon, she was attacked with a severe chill, followed by heat and perspiration. She complained of acute pain in abdomen. The pulse, seven hours afterward, was 132, small, and feeble. Tenderness of abdomen extreme, and general. Considerable tympanites.

On the following day the symptoms were as follows: Expression of anxiety. Respirations 28, inspiration short and quick. Hands cold, and of a livid hue. Pulse inappreciable. Sordes on teeth. Tongue dry and hard. One copious dejection. Abdomen much distended and tympanitic, and tender on pressure. Replies to questions slowly, dozing when not aroused, with eyeballs upturned. Died in the evening of this day, twenty hours after the perforation occurred.

In the case in which perforation is presumed to have occurred, the patient was a female, fourteen years of age. The disease in this case, was severe, and complicated with pneumonitis. The occurrence of perforation was denoted by the development of severe pain in abdomen, great meteorism, extreme tenderness, prostration, the pulse rising from 118 to 132, being very small and feeble, etc. The precise time when the accident was supposed to have occurred, is not stated. Death took place in somewhat less than forty-eight hours afterward. An autopsy was not permitted in this case.

Gurgling. The presence of this symptom is frequently mentioned, but pains were not taken to note its presence or absence with sufficient uniformity to render an analysis with respect to it of much value.

SECTION SIXTH.

Cutaneous Eruptions. [Page 87.]

Typhoid. The characteristic eruption was present in *twelve*, of the *twenty-nine Typhoid* cases. This result differs considerably from that obtained by the first analysis. The latter developed a larger proportion of cases in which this symptom was present, viz., in *twenty-three*, of *thirty* cases; the ratio, thus, being over *two-thirds*, while in the present collection it is less than *one-half.* Of the whole number of cases in both collections, viz., *fifty-nine*, it was present in *thirty-five.* I can offer no explanation of the above disparity. Careful examinations for the eruption were made in every instance, so that it is hardly possible that it could have been overlooked, and in all the cases in which it is not stated to have been present, the fact of its absence is distinctly noted in the record of each day.

The eruption exhibited the distinctive characters of that belonging to the *Typhoid* type of fever, mentioned in the first Report, in all the cases in which it was present.

The rose spots were not abundant save in *two* cases. They were confined to the abdomen and chest in every case but *one*, in the latter case extending over the upper and lower extremities.

The period in the disease at which the eruption appeared, dating from the commencement of the access, or of the febrile career, is not accurately determinable in many cases, owing to the histories being defective as to the duration of illness prior to the patients coming under observation. The period after admission at which the eruption was observed, is generally stated, but in nearly every instance, the disease had existed for a greater or less length of time before the patients entered the hospital. The facts recorded with respect to this point, are presented in the following table, which embraces also the duration of the eruption, dating from the time of admission into hospital:

ERUPTION IN TWELVE TYPHOID CASES.

APPEARANCE OF ERUPTION.	PERIOD WHEN ERUPTION WAS MUCH FADED, OR HAD DISAPPEARED.
Case 1. 8th day after entrance.	14th day.
" 2. 5th day do. Had been ill ten days.	12th day.
" 3. 2d day after entrance. Previous duration of illness not noted	6th day.
" 4. Existed when admitted. Had been ill about five days.	Not noted.
" 5. 5th day after entrance. Previous duration of illness not noted.	10th day.
" 6. 2d day. Previous duration of illness not noted.	6th day.
" 7. Existed when admitted. Had been ill ten days.	7th day.
" 8. Existed when admitted. Had been ill fourteen days.	4th day.
" 9. Existed when admitted. Had been ill ten days and confined to bed four days.	Not noted.
" 10. Existed when admitted. Had been ill several days, but rode thirty miles the day before, and walked to hospital.	Not noted.
" 11. Existed when admitted. Previous duration of illness not noted.	8th day.
" 12. Existed when admitted. Had been ill several days.	6th day.

The eruption in all the cases faded, from day to day, before finally disappearing.

Typhus. The characteristic eruption of *Typhus* was present in *eight*, of the *ten* cases of this type. An eruption was thus present in a much larger proportion of the cases than in those of *Typhoid.* The result does not present so much disparity when compared with that of the former analysis, as in the *Typhoid* cases. Of *thirteen* cases in the first collection, an eruption existed in all. In the *Typhus* cases of both collections, viz., *twenty-three,* it was present in *twenty-one.* So far as these observations go, they show the occurrence of an eruption in a very large majority of the cases of this type of Continued Fever.

In *six* of the *eight* cases, the eruption was copious, and its abundance in the *two* remaining cases is not stated.

In *six* of the cases the eruption was not limited to the trunk, but extended over the upper and lower extremities. In the *two* remaining cases the histories do not state as to this point.

The eruption presented the distinctive characters of *Typhus*, mentioned in the first Report, with the following exceptions: In *one* case rose spots were intermingled with the maculæ; and in *one* case the redness partially disappeared on pressure. A few vesicles were intermingled with the maculæ in *one* case.

The facts pertaining to the first appearance, and the duration of the eruption in the *Typhus* cases, are presented in the following table:

ERUPTION IN EIGHT CASES OF TYPHUS.

APPEARANCE OF ERUPTION.	PERIOD WHEN ERUPTION HAD MUCH FADED, OR DISAPPEARED.
Case 1. Present when admitted. Had been ill four days, but had not kept the bed.	Not stated.
" 2. 8th day.	11th day.
" 3. Present when admitted. Had been ill six days, and taken to bed day before admission.	Not stated.
" 4. 2d day after admission, and 2d day after taking to bed.	5th day.
" 5. 4th day after admission, and 4th day after taking to bed.	9th day.
" 6. Present when admitted. Previous duration of illness not stated,	Not stated.
" 7. 2d day after admission, and 2d day after taking to bed.	7th day.
" 8. 3d day after taking to bed.	11th day.

Of the cases of *Doubtful type*, an eruption appeared in *one* case only. The characters of the eruption in this case were such as to render it difficult to decide whether it resembled most that of *Typhus*, or *Typhoid*. It appeared on the *seventh* day after taking to the bed, and the *tenth* after illness commenced. The appearances are thus described in the history: "The eruption is pretty copious over the chest and abdomen, and extends, but sparsely, over the upper extremities. It is not precisely the eruption of either *Typhus* or *Typhoid*, but approaches nearer the latter. The spots are of a duller red color, are smaller, and not so distinctly elevated, or papular. The redness disappears on pressure, but not in so marked a degree, as is usually the case in *Typhoid*. After repeated examinations, and considerable hesitancy, I think the eruption is rather like that of *Typhoid*, than that of *Typhus*."

Afterward, the following record was made: — "The eruption evidently is of two kinds, the *Typhus* and *Typhoid*. *It extends over the face*."

On the next day it is stated "the eruption to-day presents more the appearance of *Typhus*."

With respect to the existence of an eruption in the fatal cases, the facts are as follows: — Of the *seven* fatal cases of *Typhoid*, in *three* an eruption existed, and in *four* it was absent. Of the *four* fatal cases of *Typhus*, in *two*, an eruption was present, and in *two* it was absent, the latter being the only cases of this type in which no eruption existed. These results accord very closely with those developed by the first analysis, limiting the attention to the *Typhoid* cases, which is manifestly proper, in so far as the former collection is concerned, inasmuch as in *all* the *Typhus* cases, in that collection, an eruption was present. In the *six* fatal *Typhoid* cases among those before analysed, an eruption was present in precisely one half.

A *petechial* eruption was present in *one* case, a case of the *Typhoid* type. It appeared on the sixth day after admission, and remained for several days. The ecchymoses were numerous over the abdomen and chest, being intermingled with a sparse rose eruption. The patient at the same time had hæmorrhage from the gums. The case ended in recovery.

Sudamina were not usually sought for, and the histories are therefore deficient in information respecting this species of eruption. It is only noted in the history of a single case — a case of *Typhoid*, concurring with copious perspiration. Had sudamina been prominent in any other case, it would hardly have escaped observation. I feel sure that this symptom could not have been present in any of the cases, with the exception just mentioned, save in so obscure a degree as not to attract attention.

SECTION SEVENTH.

Symptoms Referable to the Respiratory Apparatus. Cough. Expectoration, Pain in Chest. Pneumonitis. Aberrations of Respiratory Movements. Epistaxis. Singultus. [Page 91.]

Cough. Typhoid. — The presence of this symptom is noted in the histories of *twenty-two Typhoid* cases. Of the remaining *seven* cases of this type, its absence is noted in *three*, and nothing is stated with regard to it in *four*.

These results are not what would have been anticipated in view of those contained in the former Report. The first analysis gave, of *thirty Typhoid* cases, the presence of cough in only *ten*. Here is one of the most striking points of disparity developed by the two analyses. What is the inference? Assuming that equal care was taken in observing for this symptom, it would follow that in the two collections, which it will be observed embrace about an equal number of cases, (the one 30, and the other 29,) is exhibited a striking difference as respects liability to the morbid condition upon which the cough incident to Continued Fever depends. It is certain that the disease does manifest a development, unusual either in degree, or character, of particular phenomena, at different periods, and in different places; and the occurrence of cough in a proportion of cases so much larger in the second, than in the first collection, would appear to afford an illustration of variableness as respects this symptom. The greater preponderance of the symptom may have been owing to circumstances appertaining to the season, or to the hospital at the time the cases occurred, or it may denote special tendencies inherent in the disease itself at that time. I am unable to state which of these explanations is the correct one. It is to be considered, however, that, possibly, the disparity may not have been so great as appears from the results of the analyses. In most of the cases, as will presently be seen, the cough was slight. The fact of an occasional act of coughing may have escaped attention in some of the cases first analyzed, and, indeed, it is remarked in the first Report, that this may have been the case. It is obvious that the symptom is one which, in many instances possessing no prominence, might fail to be observed unless special pains were taken to ascertain whether it existed, or not; and the statements of the patients themselves, for reasons already given, are not to be relied upon. I can not affirm that the results are not to be accepted with the qualification involved in this consideration; but that the disparity is not in that way fully explicable, is rendered probable by the fact that the two analyses, as respects this symptom, in the *Typhus* cases, will presently be found to develop results nearly uniform. In view of this fact, the conclusion seems to my own mind a legitimate one, that, owing to causes which I will not undertake to assign, cough occurred much more frequently in the cases upon which this Report is based, than in those before analyzed.

The cough, in all except *two* cases, was either *slight*, or *moderate* in degree. In the *two* cases just referred to, it was so considerable as to constitute a prominent symptom.

Pneumonitis existed in seven cases. This is evident in *three* of the seven cases, by the physical signs, as well as rational symptoms, which are recorded. In the *four* remaining cases, the existence of this complication is denoted by the symptoms alone, viz., *rusty* and muco-purulent expectoration, accelerated respiration, dilation of the alæ nasi, etc. Physical exploration was probably not omitted in any of these cases, but the signs are not noted in the histories. The occurrence of pneumonitis is noted in only *two* of the *thirty Typhoid* cases in the first collection.

In *four* of the *seven* cases in which pneumonitis existed, the disease proved fatal. In other words, of the *seven* fatal *Typhoid* cases, *three* had this complication. Hence, it may reasonably be inferred that the danger of a fatal termination is considerably enhanced by this complication.

The cough was slight in *six* of the *seven* cases in which pneumonitis existed. This is worthy of notice, showing that the absence of this complication is not to be predicated on the fact that cough is not prominent as a symptom.

In the *two* cases ending in recovery, in which pneumonitis existed, convalescence was apparently thereby retarded, and prolonged.

Pain in the chest is noted in *two* only of the cases characterized by pneumonitis. It is noted in a few other cases, viz., in *five*. In *two* of these cases, the seat of the pain was *beneath the sternum;* in *one*, the situation is not stated; in *one*, *beneath the shoulders*, on coughing; and in *one*, *on both sides*.

As respects *Expectoration*, save in the cases complicated with pneumonitis, the histories are deficient in information. This could not have been prominent, as a symptom, with the exceptions just stated. Sibilant and sonorous rales are noted in the histories of several cases, but, in general, the presence or absence of auscultatory signs were not recorded, except in some of the cases which were characterized by the occurrence of pneumonitis.

Typhus. Of the *ten Typhus* cases, cough was present in *seven*. The first analysis gave, of *thirteen Typhus* cases, the presence of this symptom in *eleven*. These results do not exhibit great disparity, and it will be observed that, the first collection exhibits a larger proportion of cases in which this symptom was observed, the reverse of what was developed by comparing, in this respect, the *Typhoid* cases.

The cough was *slight* in *five* of the *seven* cases, and was considerable in the *two* remaining cases.

As regards the morbid condition, or conditions, irrespective of pneumonitis, (which occurred in a small proportion of cases,) on which the cough incident to Continued Fever depends, we may suppose that it is due to a slight catarrhal affection of the mucous membrane, possibly, in some instances, amounting to a very mild grade of bronchitis; or, what is perhaps more probable, that it arises from capillary congestion of the mucous membrane resembling that which so uniformly affects the skin. Louis says, with reference to this symptom in *Typhoid* fever, that from the acts of coughing being commonly slight, and rare in occurrence, he should have frequently failed to observe it, had he limited himself to taking notes merely of what he himself saw. He adds, that in some instances it appeared not to be a *bronchial* cough, but occurred for the purpose of removing mucus from the pharynx. These remarks are applicable to the cases I have observed.

In *two* cases, the presence of *pneumonitis* is evident, both from the signs and symptoms recorded; and in *one* case, the existence of this complication is rendered probable by the symptoms. In *two* of the above cases, the disease was fatal. In other words, of the *four* fatal *Typhus* cases, *two* were characterized by the presence of pneumonitis. In the first collection of *Typhus* cases, the proportionate number of instances in which this complication existed, was larger, the relation in the two conditions being as 5 — 13 is to 3 — 10.

Pain in the chest is noted but in *one* case, in that case situated in the left side, and beneath the sternum. Pneumonitis existed in that case.

Of the cases of *Doubtful type,* the histories are defective as respects cough, in *two.* In the remaining *seven* cases, cough was present in *all save one.* It was slight, except in *two* cases, in which the presence of pneumonitis is declared by the symptoms and by physical signs.

Aberrations of Respiration. The respirations were generally enumerated frequently during the progress of the disease. In this respect the histories are more full than in the first collection, in which it is simply stated that the respirations were either increased, or normal.

Increased Frequency of Respirations. Typhoid. Excluding the cases in which pneumonitis existed, the respirations were not much increased in frequency, save in *three* cases. In these *three* cases, respectively, the maximum of frequency was, 40, 32, and 32 per minute; and the mean 35 1-7, 32, and 29 per minute. Inasmuch as the histories do not contain notes of physical signs, I cannot declare positively that in these cases pneumonitis may not have been present, although, aside from the respirations, the rational indications of this complication do not appear to have existed. Of the remainder of the *Typhoid* cases, excluding those characterized by the presence of pneumonitis, in *ten,* the histories of which are pretty complete as respects the enumeration of the respiratory acts, the average number, per minute, was not far from 21½ — a moderate increase of the healthy mean. Of the ten cases furnishing this average, in some, the respirations were not at all increased. The averages in the cases respectively, are as follows:

26,	18,	18,	20,	26,
16,	24,	21,	16,	27.

Fractions are omitted in this list. There was considerable variation frequently on different days during the career of the fever. This is shown by the following table, which exhibits the successive enumerations in a few cases:

Case 1. Recovered.	Case 2. Fatal.	Case 3. Recovered.	Case 4. Recovered.	Case 5. Recovered.
1st day, 24,	16,	32,	20,	26,
2d " 24,	18,	32,	16,	20,
3d " 24,	14,	24,	20,	20,
4th " 30,	16,	20,	20,	22,
5th " 28,	28,	24,	12,	20,
6th " 28,		28,	14,	
7th			14,	

In the cases of *Typhoid* which were complicated with pneumonitis, the frequency of the respirations was greater. In *five* of these cases, the history of each of which contains a series of enumerations, the maximum of frequency, respectively, was as follows: 32, 32, 36, 40, 48. The average in the cases, respectively, was as follows: 24 1-2, 23 15-17, 27 1-3, 32, 35 7-12. The mean, in these cases, is not far from 28 1-5, which, it will be observed, is higher than in the ten cases in which pneumonitis did not exist, in the latter being 21½. In *four*, of the above *five* cases, the disease was fatal. An increased frequency of respirations sufficient to give the above mean, viz., 28, is of importance as an indication of the existence of pneumonitis. It is more constantly associated with that complication than a degree of cough greater than the average, and, hence, is of more value as a diagnostic symptom. It should affect also, to some extent, the prognosis unfavorably.

Typhus. Excluding the cases known to have been complicated with pneumonitis, the respirations became considerably increased in frequency in *three.* The maximum of frequency in these cases, respectively, was as follows: 36, 40, 44. The mean number in the same cases, respectively, is as follows: 27, 31 1-5, 33 1-5. Of the remaining *five* cases, including the two complicated with pneumonitis, the respirations were enumerated in but *two*, and of these the mean was, in one 27, and in the other, 26 4-7.

Of the *two* cases complicated with pneumonitis, the maximum frequency was, in *one* 60, and in the other 40. The mean in the first of these cases is but 26 4-5, in consequence of the pneumonitis not becoming developed until the tenth day of the disease, and the respiration, prior to that date, not being much accelerated. In the other case, the mean was 34.

On comparison of the two types, these results show, so far as they go, that in *Typhus*, the increased frequency of the respirations is greater than in *Typhoid*. This was found to be the fact in the cases before analyzed.

It would be highly interesting to determine by a comparison of the cases, whether a notable increase in the frequency of the respirations only occurs in connection, either with pneumonitis, or some other pulmonary affection compromising, to a greater or less extent, the vesicular integrity of these organs. It is certain that when more or less solidification of the lungs takes place in the cases characterized by pneumonitis, the respirations become accelerated, and, on examining the daily records, I find that frequently the development of the pulmonic inflammation is signalized by a sudden increase in the frequency of respirations, the symptoms and signs denoting that complication appearing in the histories at the same time. For example, in one of the cases of *Typhus* in which pneumonitis became developed, the respirations numbered, on successive days, 24, 20, 20, 20, 20, 18, 18; and then 32, 36, 60. Now, in this case, prior to the day on which the respirations numbered 32, there had been at first slight cough, but afterward no cough; no dilation of the alæ nasi; no expectoration. On the day, however, when the respirations became increased in number, are noted, cough, dilation of the alæ nasi, rusty expectoration, pain beneath sternum, and pleuritic stitch in left side; and on the day following, dullness on percussion over the inferior part of the left chest.

A considerable increase in the number of respirations should thus lead to suspicion of the development of pneumonitis; but the question is, may not the same acceleration arise irrespective of pneumonitis, or other pulmonary complications? There are but *six* cases, as has been stated, in the present collection, of those of the *Typhoid* and *Typhus* type, (*three* of each,) in which the respirations were notably increased without the evidences of pneumonitis being recorded; and in these *six* cases, inasmuch as the results of physical exploration are not embraced in the histories, I am not warranted in saying that this, or some other pulmonary complication did *not* exist, although not denoted by the symptoms which are recorded. The question, therefore, must remain unsettled.

Among the cases of *Doubtful type*, there were *two* which became complicated with pneumonitis. Of these cases, the maximum in frequency of the respiration, in *one*, was 60, and in the other, 48. The mean frequency in the former was 42 4-11, and in the latter 32.

Diminished Frequency of Respiration. In *two* cases, the respirations are noted once in each case as low as 12 per minute. In one of these cases, the disease was of the *Typhoid* type, of a mild grade, not complicated with pneumonitis, convalescence being established on the ninth day after admission. There were no unusual cerebral symptoms in this case. The other case was of *Doubtful type.* In this case, the respirations numbered only 12 the day following an attack approaching to apoplectic coma. Pneumonitis did not exist in this case, and convalescence was established on the ninth day after admission.

In another case, the respirations, on one occasion, were but 7. This diminution in frequency occurred in connection with another modification of the respiratory movements, viz., spasmodic inspiration, which I shall presently consider at some length, and give the concurring circumstances in detail.

Sighing. A disposition to sigh is noted in *two* cases, both of the *Typhoid* type. In *one*, it was observed on the first day after admission, and in the other case, after the patient had been in hospital for several days. In both cases, the disease was fatal.

Spasmodic Inspiration. The occurrence of an aberration characterized by *spasmodic inspiration*, in other words, the respiration being *shortened* and *quickened*, in several cases, some of which are not contained in this collection, has led me to regard it as an important symptom, significant of a morbid condition seated at the medulla oblongata, compromising that instinctive faculty pertaining to this portion of the nervous centre, upon which the respiratory movements are dependent, and foreboding a fatal termination by apnœa in some instances when other indications of immediate death are not appreciable. I am therefore desirous of studying it with some particularity in the histories in which it is noted. I find that this symptom was present in *eleven* cases, to wit, in *five* of *Typhoid*, *four* of *Typhus*, and in *two* of *Doubtful type.* I will examine the circumstances connected with it in these cases severally.

Typhoid. Case 1. In this case the inspiration became notably spasmodic (catching) on the *sixth* day after admission. Before this, no symptoms had occurred affecting very unfavorably the prognosis. The nervous symptoms were somewhat predominant, consisting of considerable delirium at night, somnolency at times during the day, and some subsultus. There had been moderate diarrhœa, and the febrile movement was not greater than in the average of cases.

The following is the record on the *fifth* day after admission:

"Reports much better. Says he slept well. Face and hands still congested. Conjunctiva much injected. Mind dull. Indifferent. Respirations 16, with dilation of alæ nasi. Pulse 108, tolerably developed. Tongue dry and smooth, coated at centre, and moist at sides. Skin rather hot and dry. Great thirst. No pain. Decubitus lateralis et dorsalis. Disposed to somnolency. Delirium during night manifested by incoherent talking and attempting to get out of bed. Two dejections yesterday, and one during night."

This group of symptoms would hardly be considered to denote much danger of a speedily fatal issue. On the next day the following is the record made by me: "Reports better. Delirium during night, as before. Sleeping when I approached the bed, and groaning with each expiration. Readily roused. Protrudes his tongue without difficulty, which is dry on the superior surface, and cracked. Relapses into a somnolent state directly after being roused. Two dejections yesterday, and one in night, the latter involuntary, in bed. Respirations 28, *inspiration shortened and quickened. Occasional stertor in inspiration.* Dilation of alæ nasi. *Slight tracheal rattle.* Slight epistaxis this morning. Pulse 120, moderately developed. Skin warm and dry. *Swallows without difficulty.* Face presents deep congestive redness. Some muscular tremor of upper extremities, and picking at bed clothes observed this morning, none during examination, nor subsultus. Abdomen tender on pressure."

In the above group of symptoms nothing appears foreshadowing a speedily fatal issue, save those referable to the pulmonary system.

Death took place at 11, P. M., of the same day, at which time the following record was made: "This patient continued to fail during the day, the respiration becoming more labored and difficult, and each expiration accompanied by a loud groan. He experienced some difficulty of deglutition a short time before dissolution, but readily swallowed remedies, and nutriment, up to that time. The circulation gradually became enfeebled, but was appreciable at the wrist a few moments before death."

There was no autopsy in this case. The patient suddenly died of apnœa, which was foreshadowed by the symptom under consideration.

Case 2. The inspiration became *spasmodic* on the *seventh* day after admission, the patient not having taken to the bed prior to entering the hospital. The symptoms generally did not denote a severe grade of disease. On the day when the aberration of respiration was noted, the following was the record: "Reports the same. Says he did not sleep well. Two dejections yesterday, and two during the night. Face and upper extremities still congested. Pulse, 92, tolerably developed. Respirations 20, slight dilation of *alæ nasi. Inspiration shortened and quickened.* Slight tremor of muscles of face. Abdomen tympanitic. Tenderness on pressure over right iliac region. No eruption. Some cough. Some appetite. He is quite thirsty."

On the *eighth* day the following is the record: "Reports better. Says he slept well. Some cough, dry. Three dejections yesterday, two in night, and one this morning. Skin warm and mellow. Tongue dry and thinly coated. Pulse 104, soft. *Respirations* 32, *with dilation of alæ nasi, and inspiration short and quick.* Moderate tympanites. Indistinct eruption. Obscure abdominal tenderness. Face and hands much congested. *Slight tremor of muscles of the face when he speaks.* No subsultus."

On the *ninth* and *tenth* days, the symptom under consideration is not mentioned. On the latter date, a slight crepitant rale was discovered, but, in general, the symptoms denoted nothing unfavorable. On the *eleventh* day, the record is as follows: "Reports about the same. Says he slept well. Had two dejections yesterday, two during night, and one this morning. Aspect improved. Less congestion of face and hands. Complains of deafness, and of being tired of the bed. Skin warm and mellow. Tongue moist and clean. Pulse 104, and tolerably developed. Respirations 24, with some dilation of the *alæ nasi.* Some cough and expectoration. Crepitant and bronchial rales intermingled on the right side, posteriorly, middle third of chest."

On the *twelfth* day, the following record was made by me: "Aspect improved, and he reports better. Last evening there occurred a paroxysm of labored respiration, with some lividity of face, tremulousness of hands, and dropping of the lower jaw. A blister was applied to the nucha, and stimulants given more freely. The paroxysm continued about an hour. Afterward, he became comfortable, and passed a good night. Less congestive redness this morning. Respirations 20. *Inspiration shortened and quickened.* Tongue moist and thinly coated. No dejections during day yesterday, two in night, and one this morning. Pulse 110, tolerably developed. Skin warm and moist. Perspired freely this morning, drops of perspiration on face. No delirium, seems perfectly rational. Cough is troublesome, expectoration small, characters not observed. The right chest anteriorly slightly dull. Sibilant rale over both sides anteriorly. Posteriorly, flatness over the left chest, with faint, crepitant rale.

After this date nothing occurred worthy of note, and convalescence was declared on the nineteenth day.

Case 4. In this case, perforation of intestine occurred on the seventeenth day after admission. Prior to this event, the career of the disease was marked by nothing special, save the development of pneumonitis. The aberration of respiration under consideration was noted the day after the perforation, death taking place at evening of the same day. In this instance the symptom had no special significance, inasmuch as the other symptoms associated with the perforation denoted a fatal issue; and, in fact, it was only an element of the moribund state.

Case 5. The symptom in this case is noted in an evening record on the day the patient was admitted. She had been ill five days before entering the hospital. In the morning record the respirations were 28, the pulse 136. Moderate tympanites and tenderness. No cough, etc. At evening, she was quite somnolent, immediately relapsing into a profound slumber after being aroused. *The respirations numbered 7. Inspiration short and quick.* No dilation. Reports that she feels better than in the morning. Has had several dejections, (four or five.) Pulse 144, tolerably developed. No pain in head. Skin warm and dry. Some thirst. Tongue dry and thinly coated. Abdomen tympanitic. No tenderness.

On the following day, the respirations were 24, *inspiration short and quick.* Pulse 140. Delirious during night. Considerable tympanites, and tenderness in iliac regions, etc.

On the next day, the symptom under consideration is not noted. Pulse 136, etc. Half an ounce of brandy, hourly, was administered. During the day, and at evening, the pulse was 116, and all the symptoms denoted improvement. Convalescence was established in a few days afterward.

In this instance, the symptom was associated with other symptoms which rendered the prognosis unfavorable, but, happily, a change for the better occurred, and the patient recovered.

Typhus. Case 1. The inspiration became notably spasmodic, in this case, on the *fifth* day after admission, the patient not having taken to the bed prior to entering the hospital. The symptoms on the *fourth* day, as recorded by me, are as follows: "Reports the same. Aspect bright. Face deeply congested. Mind seems clear, but he was delirious during the night. Sordes on teeth. Tongue moist, and thinly coated. Two dejections yesterday. Complains of thirst. Skin dry and rather hot. Pulse 120, soft and feeble. Complains of cough, and says the act of coughing occasions pain in the belly. Respirations 24. Dilation of *alæ nasi.* Complains if firm pressure is made over the abdomen. Slight meteorism. Eruption very copious, almost confluent, over the abdomen, and extends to the upper and lower extremities, even to back of hands."

The next day as follows: "Aspect same. Incoherency during night. Urinated in bed. Tongue coated, and somewhat dry in the centre; readily protruded. One dejection this morning. Respirations 24. *Inspiration shortened and quickened.* Dilation of *alæ nasi.* Cough continues.

Congestive redness diminished. No deafness apparent. No epistaxis. No abdominal distention, nor tenderness. Skin warm and dry. Pulse 120, small and feeble. In this group of symptoms, nothing certainly denotes an unusual gravity of disease, or impending danger, excepting the modified respiratory movements. The significance attached to the symptom at the time, is indicated by the fact that a blister to the nucha was added to the treatment.

The next day it is noted that the respirations were *still catching*, numbering 36; pulse 120; *no physical signs of consolidation of lungs;* delirious during night, etc.

The next day respirations 40, *still catching;* delirious during night; pulse 134.

Next day aspect much worse; *inspiration short and catching; expiration attended by a groan;* expression vacant; endeavors ineffectually to reply to questions; cannot protrude the tongue; pulse 146. Died at 2, P. M. The autopsy was limited to the abdomen.

Case 2. The inspirations were observed to be *slightly* spasmodic, in this case, on the *sixth* day. Previous to this time, the symptoms had not denoted unusual gravity of disease. The symptoms associated on the sixth day, were the following: "Aspect improved; pulse 120; skin warm and dry; tongue moist and thinly coated; two dejections; respirations 32, *and slightly catching.*"

On the following day, the patient reported pretty well. Aspect about the same. Tongue clean, dry, and somewhat fissured. No dejections. Respirations 40, *inspiration somewhat shortened and quickened.* Pulse 128, small and feeble. Skin cool and dry. Deafness continues. No abdominal tenderness. Talks incoherently. A blister to the nape of the neck is embraced in the directions for treatment on this day.

On the next day, "Aspect improved. No manifestations of delirium. Tongue clean and somewhat dry. One dejection. Abdomen soft, without tenderness. Pulse 120. Respirations 36, *still catching.* Complains of deafness."

I recollect being informed, on this day, before I entered the ward, that the patient was better, and, in fact, all the symptoms, irrespective of the respiration, gave evidence of improvement. The respirations, too, were diminished in frequency.

Death took place before the following morning. The details, after the morning record just quoted, are not given, nor the hour at which the death of the patient occurred. There was no autopsy in this case.

Case 3. In the history of this case, it is noted, on the *eighth* day, that the *inspirations were somewhat shortened;* respirations numbering 28. He was delirious during the night. Disposed now to somnolency, but readily roused. Pulse 112, and well developed. Eyes somewhat injected. Considerable congestive redness of face. Tongue dry and hard in centre. Abdomen moderately meteorized. Eruption faded. A blister to nucha was directed, and sinapisms to the calves of legs.

The day following, his aspect was much improved. He was perspiring profusely. Respirations 28. Pulse 96, etc. In two days, convalescence was established.

Case 4. The *inspirations became somewhat spasmodic* on the eleventh day. The patient was a candidate for the sisterhood, and was attacked with the disease in the hospital, having contracted it, doubtless, by contagion. Prior to the occurrence of this symptom, nothing appeared to denote unusual gravity of disease; and on the eleventh day, excepting the respiration, the symptoms were not unfavorable. The following is a transcript of the record on this day: "Passed a comfortable night. Less delirium. Bowels moved once yesterday. She reports better. Tongue thinly coated, and dry in centre. Sordes on teeth. Skin warm and slightly moist. Pulse 120. Respirations 24. *Inspirations somewhat shortened and quickened.* No epistaxis. She has slight cough. Abdomen considerably meteorized."

On the next day, the record, made by me, reads as follows: "Last evening this case assumed an alarming aspect. The rhythm of the respirations became affected to a greater extent than in the morning — the *inspirations much shortened and quickened.* It was difficult to arouse her. The abdomen was much meteorized. A blister to the neck was directed; an enema, and turpentine fomentations to the abdomen. This morning there is a marked improvement. Respirations 30, and rhythm quite normal. Abdomen moderately meteorized, and soft. Pulse 100. Skin warm and moist. Easily roused, and appears rational.

On the day following, the inspiration became again, in some degree, similarly affected. The respirations numbered 40. Pulse 120. Cough became a troublesome symptom on this day, and physical exploration disclosed the occurrence of pneumonitis. On the next day, the symptoms indicated improvement. Pulse 104. Respirations 40, and rhythm normal.

Convalescence was shortly established.

Doubtful Type. Case 1. The symptom under consideration occurred, in this case, on the second day after admission. In the morning of the day on which it occurred, the following record was made: — "Reports better.

Says he slept well. Face and hands moderately congested. Skin warm and dry. Tongue dry and coated, dark. Says he has some appetite. Great thirst. No dejection. No abdominal tenderness. No eruption. Pulse 104, soft, tolerably developed. Says he has no cough. Respirations 16, without dilation. He was delirious during night, manifested by incoherent talking. Some picking at bed clothes this morning. He is quite restless, frequently changing his position in bed."

At six, P. M., of the same day, the following record was made: — "Copious perspiration. Hands cold and clammy. Tongue dry and fissured. Pulse 140, small, and feeble. *Respiration irregular, catching.*"

In the morning record of the succeeding day, which was made by me, it is stated: — "The symptoms in this case, last evening, denoted a striking change for the worse, and the patient was supposed to be nearly moribund. Stimulants were freely administered, sinapisms applied to the extremities, a blister to the nucha, and snow to the head. He began to improve at about ten, P. M., and during the night, gradually became more comfortable.

On the following day he "Reports pretty well. Says he slept well. Face and upper extremities moderately congested. Skin warm and moist. Some meteorism. No abdominal tenderness. Pulse 68.

Convalescence was established in a few days.

Case 2. In this case the disease was of a severe grade, and complicated with pneumonitis. On the *twelfth* day after admission, the following were the symptoms: — Aspect the same. No manifestations of delirium. Circumscribed flush of cheeks. Skin moist. Pulse 108. Respirations 40, rhythm normal. Considerable tympanites.

On the *thirteenth* day, reported pretty well. Aspect same. Pulse 112. Skin perspiring, cool. Respirations 52. *Inspiration somewhat shortened and quickened.* Cough diminished. Two dejections, etc.

On the *fourteenth* day, the respirations were 60, but rhythmical. Pulse 100, etc.

This patient recovered without farther untoward symptoms.

The foregoing are all the instances in which any reference is made, in the histories, to the symptom under consideration. Had it occurred in other cases, it would not have been likely to have escaped notice, for I was specially interested in observing it during the time these cases were collected. It may, however, have been present in some other cases in the last moments of life, without being noted, forming, as it probably does, in many cases, an element of the mode of dying by apnœa.

I have given the circumstances connected with this symptom in detail, with a view to exhibit all the facts contained in the present collection of cases bearing upon its significance and value, as a symptom, occurring occasionally during the career of Continued Fever. These facts appear to show that, although sometimes observed without being followed by symptoms denoting great gravity and danger, it is generally either a forerunner of, or associated with a morbid condition of the nervous system eventuating in, or tending to coma, and death by suspension of that faculty of the nervous system which presides over the respiratory function. It is a symptom of ominous import, which may be present, not only when the associated symptoms do not give any occasion for alarm, but even when the latter would signify diminished severity of disease. The details that have been given seem to establish these conclusions, which invest the symptom with considerable importance in prognosis, and as a means of anticipating an event, to avert which, therapeutical measures may be seasonably, and perhaps successfully employed. The significance of this symptom was forcibly impressed on my mind by a case in private practice, that came under observation some weeks since, of which I did not keep notes. I was requested to visit a young girl, a domestic, who had been ill several days without medical advice. I found the patient evidently laboring under Continued Fever, the type being, at that time, indeterminate. There was high febrile movement — frequent pulse, hot skin, etc., but nothing to denote immediate danger, save that the inspirations were somewhat spasmodic. In the afternoon the symptoms generally, and that just mentioned, remained the same; but I hesitated to believe that the latter was so ominous as I had been led to suppose from cases before observed. I encouraged the suspicion, in my own reflections, that I might have overlooked its occurrence in many cases in which no sudden change for the worse had followed, and, thus, I resolved not to anticipate any such change. During the night I was summoned in haste to this patient, and I immediately surmised what I discovered when I reached the house. Nothing had occurred during the evening to alarm the family, who were, of course not cognizant of the train of reflection I had indulged, but, at length, the noisy respiration of the patient attracted attention. She could with great difficulty be roused, and soon this was impossible. Apoplectic coma had in fact supervened, and death occurred in three or four hours after the discovery was made that she was in a dangerous condition.

On the pathology or proximate cause of the nervous condition which this ymptom sometimes foreshadows, some remarks have already been submitted in a more appropriate connection, viz., in the section on the symptoms referable to the nervous system, under the head of apoplectic coma.

The peculiar modification of the respiration which I have here described as consisting in a spasmodic, or shortened and quickened inspiration, does not appear to have excited that attention which its importance, as a symptom, claims. I suppose it is to this modification that Prof. Bartlett refers, in his able treatise on fever, in speaking of an *irregular* and noisy respiration which he distinguishes as *cerebral.* Disturbance of the respiration, not dependent on the condition of the lungs, is mentioned by Dr. Nathan Smith, and by Chomel, of France, as a symptom denoting great danger.

Dilation of the Alæ Nasi. More attention was paid to this symptom in recording the histories of the cases in the present collection, than of those before analyzed. Its presence was noted in *eleven* cases of *Typhoid*, and in *five* cases of *Typhus.* Its absence was noted in *eight* cases of *Typhoid;* in the remainder of the cases in both types in which it is not stated to have been present, nothing is said respecting it. In *fifteen* of the *sixteen* cases in which it was observed, the respirations were, at the same time, more or less increased in frequency. In the single case in which the respirations were not accelerated, the dilation was slight, and is only noted to have been present on one day. In *five* of the cases in which it was observed, the fever was complicated with pneumonitis. *Six* of the cases were characterized by the occurrence of a quickened and shortened inspiration. In other words, *six* of *nine* cases thus characterized, presented this symptom.

Nine of the cases proved fatal. In other words the symptom was present in *nine* of *eleven* fatal cases, and in the *two* in which it is not stated to have been present, nothing is recorded in the histories respecting it.

These facts suffice to show that dilation of the alæ nasi is to be considered almost uniformly a sign of disorder of the respiratory movements incident to affections which, like pneumonitis, compromise the pulmonary organs, or to functional aberrations dependent on ulterior morbid conditions. It is not, however, true, on the other hand, that disorder of the respiratory movements is as uniformly accompanied by this sign; for, in several of the cases in which it was noted that the alæ did not dilate, the respirations were accelerated, in some instances constituting a prominent symptom. In *one* case, at least, in which the inspirations were quickened and shortened, the alæ did not dilate. In none of the cases in which pneumonitis complicated, is it noted that dilation was not present, nothing being stated with respect to this point in the cases in which the presence of this symptom is not affirmed.

Epistaxis. The occurrence of this symptom is noted in the histories of *nine Typhoid* cases. Of the remaining *nineteen* cases, nothing is stated relative to the symptoms in *eleven.* It is stated that epistaxis did not occur in *six;* and in *three* cases sputa expectorated were observed to be streaked with blood, which may have been derived from the posterior nares, but this is not certain. This enumeration does not, it will be borne in mind, embrace the access, or forming stage of the diseases. Attention was directed certainly in most, if not all the cases, to this symptom, and in those, in the histories of which nothing is stated on the subject, it may be presumed to have been not present. It may have occurred, in some instances, prior to the patients coming under observation, and not be embraced in the records of the previous history, although inquiries were generally made respecting this point.

The proportion of *Typhoid* cases in which epistaxis occurred is somewhat greater in the present collection, than in that previously analyzed, the numerical relation being as 19 — 29, is to 8 — 30 or 4 — 15.

The periods in the disease, dating from the time of admission, when the epistaxis occurred, were as follows, in the cases respectively: — Case 1, third day; case 2, sixth day (last day of life); case 3, second day; case 4, first day; case 5, sixth, seventh, and eighth days; case 6, first and second days; case 7, seventh day; case 8, on several days, dates not given; case 9, third day. This symptom, thus, observes no law of uniformity as respects the time of its appearance.

The hæmorrhage was either slight, or quite moderate, in all but *two* cases. In *one* of these cases the epistaxis occurred on the sixth, seventh, and eighth days, and was considerable in degree. In the other case it occurred on the first and second days, and was so profuse that the propriety of plugging the nostrils posteriorly was considered, although not found to be necessary. Aside from these two cases, it is not noted that the epistaxis occurred more than once in but a single case.

Of the cases of *Typhus* the occurrence of epistaxis is noted in *none;* nor were sputa streaked with blood observed in any case. In the first collection epistaxis was noted in *two* of *thirteen* cases of the *Typhus* type.

In the *nine* cases of *Doubtful type,* epistaxis occurred on the second and fourth days, in *one* case; and on the first and second days in *one* case. In *three* cases it is stated that this symptom was not observed, and of the *five* remaining cases the histories do not contain any statements with regard to it.

It is perhaps worthy of notice, that none of the cases in which epistaxis occurred, proved fatal. This is the more interesting from the fact that the same was true of the *Typhoid* cases in the first collection. It would thus seem that this symptom is not to be considered any evidence of unusual gravity in the disease.

SECTION EIGHTH.

Symptoms referable to the circulation. [Page 99.]

In most of the cases the pulse was enumerated once, and sometimes twice on each day, during the febrile career. Occasionally this was omitted, and in a few instances the omission occurred on three or four consecutive days. It is to be presumed, when this was the case, that the pulse presented no material variation from what had been previously noted. In connection with the frequency, other characters belonging to the pulse are usually given. Whenever any unusual characters were observed, they would undoubtedly be embraced in the daily notes. I will first direct attention to frequency of the pulse, irrespective of other qualities, and since all the facts pertaining to this point may be placed in a tabular form without occupying much space, I will again adopt this method, which was pursued in the former Report. In the following tables every thing is omitted except the numbers expressing the frequency of the pulse per minute at the time of the daily enumerations. A column will be devoted to each case, and the numbers placed in consecutive order in the same column, to denote the frequency of the pulse on successive days during the continuance of the febrile career. When the enumerations were made both at morning and evening, the numbers are placed side by side, and the letters P. M. placed before the latter. Sometimes it happened hat the record of symptoms was made at evening, and not in the morning. When this was the case, as respects the pulse, the letters P. M. are placed before the numbers. The numbers without any prefix, denote enumerations made in the morning, or during the forenoon. The omission to enumerate, or to note the frequency of the pulse on some days, is expressed, in the tables, by two ciphers. In *two* cases of the *Typhoid* type, and *one* case of *Typhus* the enumerations are so incomplete that they are omitted. The tables, therefore, which are limited to the cases assigned to these two types, contain the cts pertaining to the frequency of the pulse in *twenty-five* cases of *Typhoid*, and in *nine* cases of *Typhus*.

TABLE EXHIBITING FREQUENCY OF PULSE IN *TWENTY-SEVEN TYPHOID* CASES.

Case 1.	Case 2.	Case 3.	Case 4.	Case 5.	Case 6.	Case 7.	Case 8.	Case 9.
00	108	96	96	96	90	00	84	88
112	96	92	92	104	86	108	108	92
116	100	84	84	104	100	64	96	88
108	110	88	88	108	92	80	72	90
100	100	80	84	120	100	80	100	90
90	104	72	00	Died by apnœa	96	72	68	90
84	100	76	00	suddenly devel-	104	56	68	80
84	90	80	Mean frequency.	oped.	92	76	Mean frequency,	88
100	100	80	88 4-5.	Mean frequency,	104	00	85 1-2.	68
88	112	Mean frequency,		106 2-5.	108	00		88
96	112	83 1-9.			108	112		60
128	100				104	p. m. 104		68
132 Died.	96				100	72		Mean frequency,
On the day when	84				96	68		82 1-2.
the pulse became	88				100	72		
suddenly increas-	76				80	Mean frequency,		
ed to 128, there	Mean frequency,				96	80 1-3.		
was copious per-	97 7-8.				104			
spiration and					88			
great prostration.					108			
No other notable					84			
changes. The					76			
next day he vom-					84			
ited frequently,					72			
and had several					96			
dejections. He					84			
retained his men-					Mean frequency,			
tal faculties up to					94 4-13.			
a short time be-								
fore death.								
Mean frequency,								
103 1-6.								

TABLE EXHIBITING FREQUENCY OF PULSE IN *TWENTY-SEVEN TYPHOID* CASES.

Case 10.	Case 11.	Case 12.	Case 13.	Case 14.	Case 15.	Case 16.	Case 17.	Case 18.
92 88 76 72 80 p.m.112 84 p.m. 88 100 p.m. 96 80 84 p.m.112 84 96 108 104 100 p.m. 88 100 p.m. 92 108 p.m.132 Pulse extinct. Died after perforation, which occurred on the day on which at a.m. the pulse was 108, and at p. m. 132. Mean frequency, 94 2-3.	108 128 Died morning of fourth day after admission. Case characterized by very active and persistent delirium. Mean frequency, 118 2-3.	116 p.m.112 78 p. m. 72 88 p.m. 72 76 p.m.104 92 p.m. 80 84 Mean frequency, 88 6-11.	0 100 p.m. 76 64 p.m. 64 60 p.m. 64 66 64 Mean frequency, 69 1-2.	120 p.m.108 84 p m. 72 68 p.m. 68 88 p.m. 78 84 p.m. 76 76 p.m. 64 76 p.m. 72 72 64 100 p.m.118 112 128 p.m.124 88 p.m. 80 72 p.m. 76 64 Mean frequency, 79.	128 120 p.m.112 96 88 Mean frequency, 108 7-5.	72 80 p.m. 88 92 92 76 Mean frequency, 83 1-3.	00 136 p.m.144 140 136 p.m.116 100 84 92 p.m. 88 84 p.m. 92 88 p.m. 84 86 Mean frequency, 98 4-7.	104 90 p.m.100 p.m. 96 92 90 p.m.100 96 p.m.106 92 p.m.100 100 114 112 96 108 108 p.m.100 120 108 92 00 92 Mean frequency, 100 8-11.

TABLE EXHIBITING FREQUENCY OF PULSE IN *TWENTY-SEVEN TYPHOID* CASES.

Case 19.	Case 20.	Case 21.	Case 22.	Case 23.	Case 21.	Case 25.	Case 26.	Case 27.
136	72	116	128	120	88	100	00	00
120	72	116 p.m.116	132 p.m.140	120	104	96	112 p.m.116	00
92 p.m. 96	72	120	146	120	102 p.m.120	100	108 p.m,116	00
108 p.m.100	00	116 p.m.116	00	116	122 p.m.116	90	104	116 p.m.124
84	00	120 p.m.120	140	108	112	100	84	88
00	00	136	136 p.m.112	132 p.m.124	p.m.140	00	76	96 p,m. 80
80	00	120	96	124	84	76	76 p.m. 76	84 p.m. 90
84	104	136	p.m.112	124	60	Mean frequency, 93 2-3.	84	96
Mean frequency, 98 8-9.	108	Fatal.	90 p.m.116	120	50		Mean frequency, 95 1-5.	Mean frequency, 96 3-4.
	104	Mode of dying, by asthenia. Pulse became extinct several hours before death. Mind seemed clear.	00	128 p.m.132	42			
	80		00	120 p.m.120	44			
	76		00	130 p.m.128	Mean frequency, 92 6-13.			
	80		112	130 p.m.135				
	84		Mean frequency, 121 1-12.	138 p.m.114				
	76			126				
	96	Mean frequency, 119 3-11.		140 p.m.108				
	72			132 p.m.144				
	Mean frequency, 84 3-13.			128				
				140				
				120				
				128				
				112				
				112				
				124				
				108				
				118				
				120				
				116				
				112				
				124				
				116				
				118				
				132				
				Fatal.				
				Perforation supposed to have taken place.				
				Mean frequency, 123 18-41.				

TABLE EXHIBITING FREQUENCY OF PULSE IN *NINE TYPHUS* CASES.

Case 1.	Case 2.	Case 3.	Case 4.	Case 5.	Case 6.	Case 7.	Case 8.	Case 9.
128 140 p.m.108 100 p.m.116 100 92 80 84 76 64 Mean frequency, 98 10-11.	108 120 108 100 100 104 100 108 92 108 104 108 110 120 116 124 112 112 112 120 Fatal. Death took place some time after the last enumeration, with colonitis. Mean frequency, 109 3-10.	104 104 116 100 104 108 104 88 80 104 108 140 Fatal. Symptoms of pneumonitis appeared at time pulse increased, from 80 to 104. Prior to this, symptoms were favorable. Mode of dying by apnœa. Mean frequency, 105.	116 120 p.m.128 116 p.m. 96 108 96 p.m. 86 Mean frequency, 110.	92 120 120 120 134 146 Fatal. Mode of dying by apnœa. Death preceded by shortened and quickened inspiration. Mean frequency, 122.	104 120 120 120 128 120 Fatal. Mode of dying by apnœa. Death preceded by shortened and quickened inspiration. Mean frequency, 118 2-3.	120 120 112 00 104 96 Mean frequency, 110 2-5.	120 120 120 124 120 100 112 96 Mean frequency, 114.	112 120 112 108 112 120 100 120 104 88 Mean frequency, 109 3-5.

On following down the columns of numbers it will be perceived that the pulse presents, frequently, considerable variations in the same case during the febrile career. These variations, within certain limits, appear to be due to fluctuations incident to the progress of the disease. A striking increase in the frequency of the pulse, unless of transient duration, and occasioned by extraneous influences, usually accompanies some important event, which will be likely to affect the issue of the disease. The events, in the present collection of cases, observed to be thus signalized, are the development of pneumonitis, e. g., case No. 3 (*Typhus*); the occurrence of perforation of intestine, e. g., case No. 10 (*Typhoid*); of a condition tending to, or eventuating in apoplectic coma, e. g., case No. 5 (*Typhus*); a sudden change ending in death by apnœa, e. g., case Nos. 21 and 17 (*Typhoid*).

A great increase in the frequency of the pulse is undoubtedly of bad omen in Continued Fever; but it is by no means a fatal sign. In several of the cases, it may be observed, in which the termination was in recovery, the pulse exhibited very marked accelerations. It rose, for example, to 140 and 144 in case, No. 17 (*Typhoid*); to 140 and 146 in case, No. 22 (*Typhoid*), and to 140 in case 24 (*Typhoid*). The instances in which, among the cases ending in recovery, the pulse attained a high maximum were more numerous in the *Typhoid* group. The highest number which the pulse reached in the *Typhus* group, in the cases ending in recovery, was 140, and the highest number after this was 128. The reverse of this was true of the first collection of cases.

The average mean, however, in frequency, is greater in the cases of *Typhus* than of *Typhoid*, as the following comparison shows:

Average mean in the *Typhus* cases, 110 5 – 9.
Average mean in the *Typhoid* cases, 95 15 – 27.

These results, as respects the disparity disclosed by comparison of the two types, correspond with those developed by the first analysis. The latter gave, as the average mean of the *Typhus* cases, *excluding those which proved fatal*, 105 4 – 9; and of the *Typhoid* cases, 95 7 – 13. Excluding, in the present collection, the fatal cases, and the average mean of the *Typhus* cases is 108 1 – 5; and of the *Typhoid* cases, 91 6 – 21. Thus, in both analyses the average mean frequency of the pulse is considerably higher in the cases of *Typhus*, than in those of *Typhoid*. In the present collection, however, the average mean frequency is somewhat higher in *Typhus*, and lower in *Typhoid*, than in the cases before analysed. The average mean frequency is higher in the cases which proved fatal, than in those ending in recovery. In the fatal *Typhus* cases, it is, 113 1 – 2; in the fatal *Typhoid* cases, it is, 110 1 – 2, the disparity in the two types being still apparent.

The lowest mean exhibited in the tables, is 69 1 – 2, case No. 13 (*Typhoid*). This is below the average frequency of the pulse in health. In this case the patient entered the hospital on the day after taking to the bed, and the fourth day after the commencement of the access. The diagnosis was sufficiently clear, although the eruption was not developed. The disease was of a very mild grade, convalescence being pronounced on the seventh day after taking to the bed. In this case a relapsing febrile attack occurred, and the pulse then rose to 128. I am unable to say whether the pulse in this patient, in health, was less frequent than the normal average. Cases of Continued Fever presenting so low a mean in the frequency of the pulse, must be very rare.

The lowest mean next to that in the case just referred to, is 79, case No. 14 (*Typhoid*). In this case the pulse on one day was 128. The case was not one of very mild grade. It was characterized by notable acceleration of the respirations. Convalescence was pronounced on the twenty-first day after taking to the bed.

As a general remark, it is undoubtedly true, that the mean frequency of the pulse is a pretty good criterion of the severity of grade of the disease, this being proportionate to the degree of acceleration. The rule, however, is not without exceptions.

A reduction considerably below the normal standard, at or near the period of convalescence, appears in several cases in the present collection. In case No. 9 (*Typhoid*), it fell to 60; in case No. 13 (Do.), to 64; in case No. 14 (Do.), to 64; in case No. 24 (Do.), to 42. The same fact was noticed in the former analysis. On the other hand, in several cases, at the time of convalescence, the pulse was more frequent than in health. The latter fact has been remarked upon by several observers, but the former I do not remember to have seen noticed by writers.

It will be noticed, on reference to the tables, that the enumerations of the pulse often disclose variations in frequency on the same day. In some of these cases the greater relative frequency was in the morning, and in other cases at evening. Other cases again show, on some days, greater relative frequency in the morning, and on other days, at evening. In so far as the pulse is an index by which to estimate febrile exacerbations, these variations show the absence of any uniformity or regularity in their recurrence. It is certain that diurnal exacerbations during the progress of Continued Fever, are not nearly so often present as one is led to suppose from the current literature of the subject.

As respects the qualities of the pulse, irrespective of frequency, it will suffice to give a few brief statements. It was usually either moderately or considerably *developed;* that is, the artery appeared to have either moderate or considerable volume. Sometimes it was small, and at the same time feeble. If tolerably developed, the impulse communicated to the touch denoted a kind of smartness in the systolic contraction, but it was almost invariably compressible. It was never hard. In a few cases it was noted as vibratory, or thrilling. If it became very frequent, it was uniformly quite soft or feeble. To trace the connections of these variations with other symptoms in the different cases, would require not a small degree of labor, which it is not probable would yield results commensurately valuable. In general, it may be said, that in Continued Fever, the circulation presents a morbid *activity*, not, however, involving an increase of *power* in the motive agencies by which the circulation is carried on. The distinction intended to be expressed by these terms has, theoretically, an important bearing on the subject of therapeutics.

Congestion of the capillary vessels properly enough belongs in this section, but the facts pertaining to this subject which the analysis discloses, have been already sufficiently considered in connection with the symptoms referable to the general aspect, section third. The presence of capillary congestion in a large majority of the cases of Continued Fever, is evidence that the circulation, although unduly excited, is carried on less efficiently than in the state of health.

SECTION NINTH.

Symptoms (exclusive of eruptions) referable to the skin. [Page 107.]

During the progress of Continued Fever, the skin generally presents a series of changes as respects temperature, dryness, moisture, and sweating. The facts pertaining to the order of succession of these changes in individual cases, form an interesting portion of the natural history of the disease. In the first Report a few selected cases were given illustrative of the diurnal succession of this class of symptoms during the career of the fever. As it will not occupy much space, I will embrace in the present Report, in a tabular form, a succinct statement of the condition of the skin (irrespective of eruptions) in *twenty-four* cases of *Typhoid*, and in *eight* cases of *Typhus*, the histories of which are pretty complete in this particular. In the tables which follow, the cases are arranged in parallel columns, as in those exhibiting the pulse; and the symptoms, which were daily recorded, are arranged in each column in the order of their succession, commencing with the time the patients entered the hospital, and ending with the termination of the disease either in death, or the stage of convalescence. The days on which no record of the condition of the skin was made, are represented, as before, by two ciphers. Each column, thus, contains the facts pertaining to the skin which were noted in the history of the case to which the column is devoted.

TABLE EXHIBITING SYMPTOMS REFERABLE TO THE SKIN IN *TWENTY-FOUR TYPHOID* CASES.

No. 1, *fatal.*	No. 2.	No. 3.	No. 4.	No. 5, *fatal.*	No. 6.	No. 7.	No. 8.
Hot and dry.	Rather hot.	Hot and dry.	Warm and mellow.	Warm and mellow.	Warm and mellow.	00	Warm and dry.
Warm and moist.	Warm and dry.	Perspiring freely.	Do.	Rather hot and dry.	Rather hot and dry.	Dry and burning heat.	Free perspiration in night.
Do.	Warm and mellow.	Free perspiration in drops on face.	Warm and moist.	Warm and mellow.	Do.	Perspiring freely.	Warm and mellow, free perspiration in night.
Warm and mellow.	Warm and dry.	Perspiring freely.	Warm and mellow.	Rather hot and dry.	Warm and dry.	Warm and moist.	Warm and moist.
Dry and rather hot.	Do.	Warm and moist.	Warm and moist.	Warm and dry.	Do.	Warm and mellow.	Warm and mellow.
Warm and mellow.	Do.	Do.		Died 5th day.	Warm and mellow.	00	
Do.	Warm and mellow.	Do.			Do.	Warm and mellow.	
Do.	Warm and moist.	Do.			00	Warm and moist.	
Do.	Do.	Rather hot and dry.			Warm and mellow and at p. m. gentle perspiration.		
Warm and moist.	Warm and mellow.				Rather hot and dry.		
Warm.	Warm and moist.				Warm and dry.		
Warm and moist, and face covered with perspiration	Warm and mellow.				Warm and mellow.		
Warm and moist.	Do.				Free perspiration in in drops on face.		
Died.					Free perspiration.		
					Do.		
					Warm and moist		
					Free perspiration.		
					Do.		
					Warm and mellow.		
					Do.		
					Perspiring.		
					Normal.		

TABLE EXHIBITING SYMPTOMS REFERABLE TO THE SKIN IN *TWENTY-FOUR TYPHOID* CASES.

No. 9.	No. 10, *fatal*.	No. 11, *fatal*.	No. 12.	No. 13.	No. 14.	No. 15.	No. 16.
Warm. Warm and moist. Warm and dry. Warm and moist. Warm and mellow. Hot and dry. Warm and mellow. Hot and dry. Warm and mellow.	Warm and moist. Hot and dry. Warm and mellow, and at p. m. cool. Warm and moist, and at p. m. rather hot and dry. Warm and mellow, p. m. warm and moist. Warm and moist. Warm and dry, at p. m. hot and dry. Warm and mellow. Warm, p. m. warm and moist. Warm. Hot and dry, p. m. warm and moist. Free perspiration at night, warm and moist, at p. m. hot and dry. Cool. Hot and dry. Warm, at p. m. hot and dry. Warm and moist. Cold, livid.	Rather hot. Warm and mellow. Persp'ation in drops over face and moderate over trunk and extremities. Profuse perspiration. Died.	Free perspiration at night. Hot and dry. Warm and moist. Warm and mellow. Do. Hot and dry, p. m. warm and moist. Warm and mellow, at p. m. rather hot and dry.	Free perspiration at night. Warm and moist. Warm and mellow. 00 Warm and mellow. Do. Do.	Rather hot and dry, at p. m. warm and moist. Warm and moist, and at p. m. cool. Warm and mellow, and at p.m. warm and moist. Warm and moist, and at p. m. do. Warm and mellow, and at p.m. warm and moist. Warm and mellow, and at p.m. warm and moist. Warm and moist. Warm and dry. Warm and moist. Do. Free perspiration. Profuse perspiration. Warm and mellow. Warm and moist. Warm and mellow.	Hot and dry. Do. Warm and dry. Warm and mellow.	Warm and mellow. Warm and dry, and at p. m. perspiring. Warm and dry, and free perspiration in night. Warm and mellow.

TABLE EXHIBITING SYMPTOMS REFERABLE TO THE SKIN IN *TWENTY-FOUR TYPHOID* CASES.

No. 17.	No. 18.	No. 19.	No. 20.	No. 21, *fatal.*	No. 22.	No. 23, *fatal.*	No. 24.
00	Warm and moist.	Warm and mellow.	Persp'ation in drops on face.	Warm and mellow.	00	Warm and rather dry.	Warm and moist.
Warm and moist, and at p.m. warm and dry.	Persp'ation in drops on face, and at p. m. warm and moist.	Warm and dry, and and at p.m. warm and moist.	Warm and moist.	Warm and dry.	Warm and dry, and at p. m. hot and dry.	Warm and mellow.	Do.
Cool and moist, at p. m. clammy.	Do.	Warm and dry.	Do.	Warm and mellow.	Warm and dry.	Warm and rather dry.	Perspiring freely.
Warm and moist.	Do.	Warm and mellow.		Do. and at p. m. warm and dry.	Hot and dry.	Do.	Warm and dry.
Warm and mellow.	Perspiring freely.	Do.		Warm and dry.	Warm and dry.	Rather hot and dry.	Do.
Do. and at p. m. warm and dry.	Warm and moist, perspired freely in night.			Warm and mellow.	Warm and mellow.	Warm and dry.	00
Warm and mellow.	Cool.			Warm.	Less heat.	Do.	00
Do.	00			Do.	Hot and dry.	Do.	Warm and dry.
Warm and moist.	00			Died.	Warm and mellow, at p. m. hot and dry.	Do.	Warm and mellow.
	Warm and mellow.					Do.	
	Warm and moist, and at p.m. warm and dry.					Do.	
	Warm and moist.					Do.	
	Warm and mellow.					Do.	
	Do.					Do.	
						Do.	
						Do.	
						Do.	
						Do.	
						Do.	
						Do.	
						Do.	
						Warm and mellow.	
						Do.	
						Warm and dry.	
						Warm.	
						Warm and mellow.	
						Do.	
						Hot and dry.	
						Warm.	
						Warm and dry.	
						Do.	
						Do.	
						Mellow.	
						Warm and dry.	

TABLE EXHIBITING STATE OF THE SKIN IN *EIGHT TYPHUS* CASES.

No. 1.	No. 2, *Fatal.*	No. 3, *Fatal.*	No. 4	No. 5, *Fatal.*	No. 6, *Fatal.*	No 7.	No. 8.
Hot and dry.	00	00	Warm and dry.	00	00	Profuse perspiration.	00
Warm and mellow.	00	00	Do.	Warm and dry.	00		00
Warm and rather dry.	00	Warm and dry.	Warm and moist, and at p. m. hot and dry.	Dry and rather hot.	Warm and day.	00	00
	Warm and mellow.	Warm and moist.		Warm and dry.	Warm and mellow.	Warm and moist.	Hot and dry.
Warm and mellow.	Dry and rather hot.	Warm and mellow, perspired freely in night.		Do.	Warm and dry.	Warm and mellow.	Do.
Do.	Warm and mellow.		Warm and mellow.	Do.	Do.	Do.	Warm and dry.
Do.	00		Warm and moist.	Do.	Cool and dry.	Warm and moist.	Do.
Do.	Warm and dry.	Warm and moist.	Warm and mellow.			Perspiring profusely, drops on face.	Do.
Do.	00	Do.					Warm and mellow.
	Warm and mellow.	Moist.				00	Warm and slightly moist.
	Warm and moist.	Free perspiration.				Perspiring profusely.	
	Profuse perspiration.	Warm and moist.					Warm and moist.
		Do.				00	Warm and dry.
	Perspiring freely, drops on face.	Do.				00	Mellow.
							Warm and mellow.
	Warm and mellow.						
	Died subsequently with secondary dysentery.						

The data contained in the foregoing tables, show that free perspiration, or sweating, occurred in *fourteen*, of the *twenty-four* cases of *Typhoid*, and in *three*, of the *eight* cases of *Typhus*. In the first collection, this symptom was present in *fourteen*, of *twenty-seven* cases of *Typhoid*, and in *five*, of *twelve* cases of *Typhus*. The results of the two analyses thus do not greatly differ.

Of the *fourteen* cases of *Typhoid* characterized by sweating, it is noted to have occurred but *once* in the histories of *seven; twice* in *four* cases; *three* times in *one* case; *seven* times in *one* case, and *six* times in *one* case.

Of the *three* cases of *Typhus* characterized by sweating, it is noted to have occurred *once* in the history of *one* case, *twice* in *one* case, and *three* times in *one* case.

It is a curious coincidence worthy of passing remark, that of the *fourteen Typhoid* cases in the first, and of the *fourteen Typhoid* cases in the second collection, characterized by sweating, in precisely the same number, viz., *seven*, this event is noted to have occurred but *once* in each case.

The sweating, in degree, as before, differed at different times, as also in duration. Frequently it was quite profuse, drops standing more especially on the face. It was observed, as before, also, to occur or commence oftener at night than during the day.

Moisture of the surface is noted to have been present, more or less, as respects the number of days, in *seventeen* cases of *Typhoid*, and in *four* cases of *Typhus*. This condition obtained in a larger number of cases in the present collection than in the cases before analyzed. The number of times in which it was noted in the cases severally need not be enumerated. It will be seen, on glancing at the tables, that, of the cases in which it was present, it was noted generally several times, alternating sometimes with free perspiration, and sometimes with dryness of the skin.

The *two Typhoid* cases in which profuse perspiration occurred the greatest number of times, (viz., in *one six*, and in the other *seven* times), claim particular notice. Case No. 6, in which it occurred *seven* times, was of medium severity, convalescence being pronounced on the nineteenth day after admission. The convalescence was retarded by the complication of pneumonitis.

Case No. 18, in which it occurred *six* times, was also complicated with pneumonitis. In other respects the disease was not unusually severe, and convalescence was pronounced on the sixteenth day. Thus both cases ended favorably.

Directing the attention now to the fatal cases, of the *seven Typhoid* cases proving fatal, free perspiration occurred in *three*, and moisture of the surface in *two*. Of the *four* cases of *Typhus* ending fatally, free perspiration occurred in *two*, and moisture of the surface in *two*. These results accord with those developed by the first analysis, and confirm the conclusion that the occurrence of sweating, or moisture, has no special bearing on the prognosis.

The facts apparent on reference to the tables, confirm another conclusion deduced from the results of the analysis, viz., moisture, and free perspiration do not, as is frequently imagined, exert a manifest salutary influence on the progress or issue of the disease. On reference to the tables it will be found that these conditions of the skin were observed at different periods of the febrile career, in the large proportion of instances not preceding, by a short space of time, the date of convalescence. Moreover, these appearances were observed in nearly one half of the cases which ended fatally. We are not warranted, then, in predicating expectations of speedy convalescence, or recovery, upon either of these symptoms disconnected from other circumstances; nor do these results afford any grounds for supposing that to induce moisture or sweating by therapeutical means will be likely to prove beneficial.

The perspiration in Continued Fever has been said to emit a peculiar odor characteristic of the disease. I have directed some attention to this point, but I could never satisfy myself of the existence of such a symptom. The Sisters at the Hospital, and some of the Students, have frequently assured me that they were sensible of a distinctive odor arising from the bodies of fever patients under my charge, but I have always failed to verify, to my own satisfaction, this diagnostic. It would be assuming too much to distrust the ability of others to recognize the disease by the olfactory sense, and the probable, as well as the more modest inference is, that the ill success which has attended my efforts, is due to a want of sufficient acuteness to appreciate impressions received from this source.

The temperature of the surface, as estimated by the touch, varied considerably in most of the cases on different days during the progress of the disease. Coolness was seldom observed, but frequently the heat did not appear to be above the normal standard. In *eight* only of the *twenty-four Typhoid* cases, and in *two* of *Typhus* the skin on one or more days is noted as *hot;* and in *five Typhoid* cases, and *one* case of *Typhus* it is noted as *rather hot.* In the majority of instances the elevation of temperature thus designated, was present in the early part of the disease. A *burning heat* is noted in only *one* case — a case of the *Typhoid* type. The descriptions by some writers give the impression that an acrid heat (*calor mordicans*) is frequently present in both *Typhoid* and *Typhus* fever, but more especially in the latter, of which it is sometimes mentioned as a characteristic feature. My observations do not show it to be a frequent symptom in cases of either type, nor that is distinctive of either. On this point the results of the two analyses concur.

Finally, it will be perceived, on reference to the tables, that a *warm* and *mellow* state of the skin, in other words a normal condition, obtains, more or less, during the febrile career, in a certain proportion of cases. It might be imagined that this would not occur except when the disease was remarkably mild, or only in connection with other symptoms of a favorable character. Such, however, does not appear to be the fact. The skin was at times normal in cases of severity, indeed in some of those which ended fatally; and when the symptoms in general did not denote improvement.

In view of the foregoing facts, it does not appear that the skin in Continued Fever, so far as it has been considered in this section, affords symptoms which possess much special significance or importance: that is to say, we are not warranted in deducing from the different conditions of this structure, as respects sweating, moisture, or temperature, any positive inferences concerning the tendencies and probable issue of the disease, or therapeutical indications. A survey of the results developed by the present and former analysis seems to lead to this conclusion, which, it is very probable, does not accord with the notions entertained by some practitioners. The investigation by means of enumerations, and comparisons of the phenomena in a series of recorded cases, not infrequently compels us to abandon, or modify preconceived ideas based on speculation, or imperfect generalizations which exert more or less influence upon the exercise of our art. So far, the effect of such an investigation is negative in its character, but the advantage is not less positive than if an important practical principle had been developed. To disprove an erroneous opinion is often scarcely less useful than to discover a new truth; for, in the practice of medicine, it is an object not less to avoid acting under false views, than to adopt and apply those which science may establish.

Gangrene. Gangrenous ulceration of the skin is noted in the histories of *two* cases, one of the *Typhoid*, and the other of *Doubtful type.* In the former case it was observed on the third day after admission, the latter being several days after the commencement of the fever. The case terminated fatally the day after the gangrene was discovered. It was situated on the left nates. In the other case it was discovered about the time of convalescence, which was on the eighteenth day after taking to the bed. This case was severe. The patient had considerable embonpoint. The eschar was not large, and rapidly headed after convalescence was established.

Erysipelas did not occur in any of the cases in this collection.

SECTION TENTH.

Symptoms referable to the Genito-urinary System. [Page 114.]

A daily record of the results of careful analyses of the urine during the progress of Continued Fever, in an extended series of cases, would form a valuable contribution to the natural history of this disease. Such an accumulation of observations, taken in connection with other classes of symptoms, would offer an interesting field for analytical exploration. The task of collecting the data for an investigation of this kind, so far as I know, is yet to be performed. It is, of course, impossible to foresee the facts and relations which would be disclosed. They might prove to be both curious and important. But even if nothing striking or useful should be developed, an end of not a little consequence would be attained, inasmuch as it would then be settled, that, with our present means of pathological research, nothing is to be looked for in that direction. The toil of cultivating the domains of science is best rewarded, it is true, by the abundance and richness of the harvest, yet to determine whence no such reward is to be expected, will compensate for not a little labor by restricting future efforts within the compass of a fruitful soil.

After these remarks, I regret to state, with respect to facts pertaining to the subject of this section, that this Report will be as meagre as the first. When I began to record the cases embraced in the present collection, I resolved to devote special attention to the urinary secretion. The difficulties in the way of prosecuting the undertaking, however, soon led to its abandonment, and, indeed, it was never fully entered upon. To carry out the plan remains for a future attempt, and perhaps for those whose opportunities are more favorable, or who are more persevering in overcoming obstacles. The histories of the cases contain only a few events which were of a character to attract notice. They will occupy but a brief space.

Retention of urine is noted in the histories of several cases, viz., (*Typhoid*) in *one* case no urine was passed for two days, when the catheter was employed, after which no further trouble arose from this source. In *another* case, on the third day after admission, a resort to the catheter became necessary, and a quart of urine was drawn off. The difficulty in this case did not recur. Retention in a less degree, relieved without the surgical remedy, is noted in *three* cases. In all these cases symptoms of nervous disorder were prominent. The symptom is undoubtedly due, in most instances, to the blunted perceptions, the patient not experiencing suffering from the accumulation, until the distension becomes so great that the power of voluntary evacuation is impaired or lost. The importance of exploring the hypogastric region, and ascertaining daily if urine has been discharged, is sufficiently obvious.

Retention is not noted to have occurred in any of the cases of *Typhus*, or those of *Doubtful type.*

In several instances the discharge of urine took place in bed, either involuntarily, or from indifference.

Menstruation occurred in *one* case during the progress of the disease, on the fifth day after admission, which was several days before convalescence was established. The case was one of mild grade.

In *one* case, of the *Typhus* type, the patient made complaint of pain in urinating, about the time convalescence was established.

In *one* case, of *Doubtful type*, considerable difficulty and pain was experienced in the act of micturition during a portion of the febrile career.

These are all the facts pertaining to the genito-urinary system which the histories embrace.

SECTION ELEVENTH.

Duration of the Disease. Circumstances attending Convalescence. Sequelæ. Mode of Dying. Fatality. [Page 115.]

Duration. In this, as in the first collection, the histories of several of the cases are defective in data for determining the time when the patients took to their beds, which, according to the rule I have pursued, fixes the commencement of the febrile career. In some cases the date of the first symptoms of the access were not ascertained. In these instances there is wanting the point of departure from which to measure the duration of the disease.

The period at which convalescence was pronounced, was determined by the ensemble of circumstances. According to my observations, it is not generally the case that a transition from the febrile career to convalescence takes place within the space of twenty-four hours. The change is usually not sudden. Occasionally it is so, but in the larger proportion of cases patients gradually advance to the point at which the febrile career may be declared to have ended, and the stage of convalescence entered on. Nor is it easy to fix on any arbitrary circumstances which shall suffice to mark the termination of the fever, as taking to the bed is considered to denote its beginning. The latter criterion is confessedly inaccurate, but any special event which may be selected for the former end would be still more open to objections. To make the fact of giving, for the first time, solid food as a criterion, after the plan of Louis, as remarked in the first

Report, is to select an event which, of necessity, involves the pre-determination of the very point which it is made to indicate. The event simply denotes that at a particular day the patient was considered convalescent. It is plainly no evidence in itself of the fact of convalescence, but only of the opinion of the practitioner that the patient is convalescent. The patient assuredly may have the power to take solid food, if it be offered, while the disease is progressing. Moreover, it may not be considered unobjectionable by some, to give solid food prior to convalescence, and in such cases, the rule is not applicable.

There is, in fact, no alternative but to decide the point, in individual cases, by a fair and judicious estimate of all the symptoms; in other words, by an exercise of judgment based on the aggregate of circumstances. Such being the fact, a certain latitude follows. Different practitioners, it would be expected, might differ in the exercise of judgment in this particular; and the same practitioner might differ in applying his judgment in several cases. In short, it is by no means practicable in all cases to define the precise chronological limits of Continued fever with mathematical precision. This consideration, as it seems to me, disposes at once of the subject of critical days — a subject which has heretofore been much discussed. The question whether the disease ended on a critical, or non-critical day, is inapplicable to a large proportion of the cases of fever, inasmuch as the limits of the disease cannot be determined with exactness. This want of precision in fixing the duration, is not attended with any serious evils. For all practical purposes, sufficient accuracy is attainable.

The following tables will exhibit the facts pertaining to duration in so far as they are embraced in the histories. They will present an enumeration of the number of days from the commencement of the access, and from the time of taking to the bed to the time of convalescence, in all the cases that contain information on these points. They will embrace an enumeration of the number of days after admission into the hospital, to convalescence, and with respect to this point the data are, of course, in all cases available.

The number of days from convalescence to discharge, or the last date of record, and the whole number of days in hospital, will also be included. With respect to the latter point, however, I should premise that it is of but little practical importance, because other circumstances than those pertaining to the disease frequently determined the stay of patients in hospital. Some were anxious to get away as soon as possible, and it was an object with others to remain as long as possible, for reasons that were stated in the former Report.

TABLE EXHIBITING DURATION IN *TEN* CASES OF *TYPHUS*.

	1	2	3	4	5	6	7	8	9	10	
No. of days from taking to bed to convalescence, - - -	11			9			14	16	12	18	Total, 80. Mean, 13 1-3.
No. of days from commencement of access to convalescence, - -	15			14			14	20	15	21	Total, 99. Mean, 16 1-2.
No. of days from admission into hospital to convalescence, - -	11			8			14		12		Total, 45. Mean, 11 1-4.
No. of days from convalescence to discharge,	52			48			10		27		Total, 137. Mean, 34 1-4.
No. of days in hospital,	63			56			24*		39†		Total, 182. Mean, 45 1-2.
Fatal Cases.											
From taking to bed,					9	9					Total, 18. Mean, 9.
From commencement of access, - - -			21		11						Total, 32. Mean, 16.
From admission into hospital, - - -		53	17		9	9					Total, 88. Mean, 22.

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* Sister of Charity connected with Hospital.

† Candidate for Sisterhood connected with Hospital.

TABLE EXHIBITING DURATION IN *TWENTY-NINE TYPHOID* CASES.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
No. of days from taking to bed to convalescence,					10		19						9	7	21		11		16		23				11			8	8	Total, 143. Mean, 13.
No. of days from commencement of access to convalescence, -				23	14					19			11	10	21	11	16	13	26	15	23				11				12	Total, 225. Mean,16 1-14
No. of days from admission to hospital to convalescence, - -	11		19	9	5		19	9	6	9			7	6	15	8	6	10	16	10	17		13		11		11	7	8	Total, 232. Mean,10 6-11
No. of days from convalescence to discharge, or date of last record,	4			17	10		30	8	7	2			21	21	†	21	19	13	20	31	16		33		32		6	44	70	Total, 425. Mean, 21 1-4.
No. of days in hospital, - -	15			26	15		49	17	13				28	27		29	25	23	36	41	33		43		43		17	51	78‡	Total, 609. Mean,32 1-19
Fatal Cases.																														
From taking to bed, - -		19																						41						41
Fr'm commencement of access,												14												41		7				Total, 48. Mean, 24.
From admission to hospital, -		*				5					17	4										9		38		2				Total, 49. Mean, 19 1-3.

* Porter in hospital. † Remained in hospital as domestic. ‡ Remained a long time after complete recovery.

In comparing and commenting on the results contained in the foregoing tables, I will consider each division of the enumerations under a distinct head.

1. *Number of days from taking to the bed to convalescence.* The two types, *Typhus* and *Typhoid*, exhibit, in this aspect, the same mean duration within a fraction — being in the latter, 13, and in the former, 13 1-3 days. The fractional excess is in favor of the *Typhus* tpye. It is less in either type than in the first collection of hospital cases, in which the mean number of days, in the *Typhoid* cases, was 20; in the *Typhus* cases, 14 4-5. The first analysis, it will be seen, gave a marked disparity, in the two types, as respects this view of the duration — the number of days being greater in the *Typhoid* cases by nearly one-quarter. Thus, in comparing the results of the two analyses, there is a difference when the cases of both types, in the two collections, are brought into contrast, and when the two types are contrasted with each other in both collections.

The difference in the individual cases, in the duration after taking to the bed, is considerable. The *minimum*, in the *Typhoid* cases, is 8, and the *maximum*, 23 days; in the *Typhus* cases the variations in this respect are less, the *minimum* being 9, and the *maximum*, 18 days.

In the *fatal* cases the duration from the time of taking to the bed is noted but in *one Typhoid* case, and in that case was 41 days. It is noted in *two Typhus* cases, in each of which it was 9 days.

It is to be considered that the enumerations with respect to the duration from the time of taking to the bed, do not embrace all the cases in the present collection, as will be observed on looking at the tables. In some of the histories information on this point is not contained. The number of days is stated in *thirteen* (two fatal) of the *twenty-nine* cases of *Typhoid*, and in *eight* (two fatal) of the *ten* cases of *Typhus*. The same incompleteness existed in the tables embraced in the former Report. In the latter the number of days is stated in *six* of the *eighteen* hospital cases of *Typhoid*, and in *five* of the *twelve* hospital cases of *Typhus*.

1. *Number of days from commencement of the access to convalescence.* The mean number of days in the *Typhoid* cases, was 16 1-14 days. In the *Typhus* cases, it was 16 1-2 days. Here, again, the results in the two types are very nearly equal.

In the first Report enumerations were not made with respect to this point.

Of the *fatal* cases, the mean duration in those of the *Typhoid* type, was 24, and in *Typhus*, 16.

The enumerations of days under this head, contained in the tables, embrace *seventeen* (*three* fatal) of the *twenty-nine* cases of *Typhoid*, and *eight* (*two* fatal) of the *ten* cases of *Typhus*.

3. *Number of days from admission into hospital, to convalescence.* In the *Typhoid* cases, the mean number of days was 10 6-11. In the *Typhus* cases, it was 11 1-4. Here the disparity between the two types is not great. The *Typhus* type, it will be observed, exhibits the greater number of days.

In the first Report the mean number of days in the *Typhoid* cases, was 13 5-14; and in the *Typhus* cases, 11 10-11.

The cases in the first collection, thus, in both types, had a longer duration in this point of view, and as respects the relative duration of the two types, the results are the reverse of each other: in other words, the duration was longer in the *Typhoid* cases in the first, and longer the *Typhus* cases in the second collection.

In the *fatal* cases, the mean duration, dating from admission into hospital, in the *Typhoid* cases, was 19 1-3, and in the *Typhus* cases 22; the latter cases, as well as those which recovered, exhibiting a longer duration.

4. *Number of days from the date of convalescence to date of discharge.* In the *Typhoid* cases, the mean was 21 1-4 days. In the *Typhus* cases, it was 34 1-2 days. The disparity here was considerable. In this point of view, the duration, in the two collections, of both types, presents a striking contrast. In the first Report the mean duration of the *Typhoid* cases was 10 5-13, and of the *Typhus* cases, 16 3-7.

This difference is undoubtedly owing, in a great measure, to other circumstances than those pertaining to the condition of the patients consequent on the disease. Nearly all the patients in the last collection of cases were foreign emigrants supported by the State Emigrant Fund, which was continued until they were able to labor. Support of patients in this hospital from this fund, was not contributed prior to the year in which these cases were collected. Moreover, the pecuniary resources of the institution, which, prior to the past year had been quite limited, had become larger, so that patients who desired to remain until their health and strength became fully established, could be indulged in this respect, more than formerly. These considerations account for much, if not most of the prolonged stay in hospital after convalescence. The great disparity between the *maximum* and *minimum* periods of duration after convalescence, in individual cases, shows that the variations were due to extrinsic causes. Thus, in the *Typhoid* cases we find one patient remained only *two* days after the date of convalescence, another *four* days, and another *six* days; while, at the other extreme, one patient remained *forty-four* days, another *seventy* days, another *thirty-three*, etc.

The comparisons, as regards the whole number of days in hospital, are embraced under the foregoing heads, and therefore do not call for distinct consideration.

The duration of the disease dating from the time of taking to the bed, and from the time of admission into the hospital, is less than in the cases before analyzed. This is an interesting fact. How is it to be explained? It may be partially, or entirely due to a difference of habitude of this disease, in this particular, at different periods. That the disease does exhibit variations in duration, in different years, is shown by the observations of Dr. Jackson, of Boston. Dr. Jackson's Report on Typhoid Fever, contains a tabular exhibition of the average duration for each year of twelve successive years. This table presents considerable fluctuations, the extremes being nearly eighteen days in one year, and nearly twenty-six days in another. This is, in fact, the best explanation that can be offered. It may be supposed that the cases in the present collection were better managed, therapeutically, or hygienically, or both, and that the continuance of the disease was in that way abridged. There may be some force in this supposition, but it is impossible to say how much importance is to be attached to it. The difference in mortality was slight in the two collections, and not in favor of the last collection. Even admitting a marked improvement in the management of the disease to be susceptible of proof, it is not certain that the effect would be a notable diminution in the mean duration. It may be that such an effect would follow. The idea is certainly not irrational; but, in the present state of our knowledge, it is hypothetical.

The average duration of the disease, as developed by the present analysis, dating either from admission into the hospital, the time of taking to the bed, or the commencement of the access, is singularly short, being less than in any collection of cases, the results of the analysis of which have fallen under my notice.

Another point is important to be noticed. The average duration of the febrile career in cases of *Typhus*, has heretofore been found, by different observers, to be so constantly less than in cases of *Typhoid*, that this is considered to constitute one of the points of distinction between the two types. The results of the first analysis were in accordance with this rule. The present analysis, however, gives an average duration nearly equal, the slight difference telling against the rule. This suffices to show that as a law of the disease it will not be found invariably to hold good. This fact, however, is important to be remarked, disparity between the *Typhus* cases in the first and second collections, as respects duration, is not great; in other words, the cases of this type, in both collections, exhibit nearly the same average. That the average duration of the *Typhoid* cases is not greater than that of the cases of *Typhus* in the present collection is, thus, owing to the shorter duration of the former, not to an extended duration of the latter. This distinction should be borne in mind.

In connection with the above fact, it may be remarked, that the disparity of the results developed by the two analyses with reference, not only to that point, but in other particulars, illustrates the value of analyzing the cases collected in different years, separately, so as to bring the results into comparison with each other. In this way, the effects due to the eccentricities of the disease, or to the influences incident to different periods of time, are made to appear.

Circumstances attending Convalescence. In separating and arranging the facts contained in the histories, preliminary to instituting the enumerations and comparisons which it is the object of these reports to set forth, I omitted, inadvertently, in the present analysis, to direct particular attention to the circumstances preceding or connected with the occurrence of convalescence. As the first collection of cases were studied carefully with respect to this point, there does not seem to be an object sufficient to influce a re-examination of the cases of the present collection to supply the above omission. I have, therefore, nothing to add under this head to the conclusions submitted in the first Report.

Sequelæ. Aside from the facts which I shall present under the head of *relapses*, nothing which would properly be classed among the *sequelæ* of the disease came under notice save in one case. But it is to be considered that the patients were under observation only from the time of their admission, to their discharge. After leaving the hospital they were lost sight of, a large proportion being immigrants, *in transitu* to other places. My opportunities to study the probable influences of Continued Fever in the production of other diseases after a greater or less lapse of time, and its remote effects on the organism, have been quite limited; nor have I taken pains to record the few facts pertaining to this interesting subject which I might have collected.

In the single instance just referred to, the patient left the hospital on the thirty-third day after admission, and resumed the occupation of a laborer. Eighteen days subsequently he was again admitted with cough and febrile movement. He kept the bed for several days after admission, and was afterward about the ward, but remained feeble. On physical examination of the chest a month after the last admission, I found the signs of pulmo-tuberculosis. This was about the time my service ended, and the history from that date I have not learned.

Relapses. The facts contained in the histories of the cases relating to *relapses*, in other words, recurrence of febrile movement, with more or less of the symptoms belonging to the primary career of the fever, several days after convalescence was apparently established, exhibit a striking contrast with the results developed by the first analysis. In the former Report it is stated that "in none of the cases did *relapse* occur," and I added, "I have never witnessed what might properly be called a relapse after the career of Continued Fever was ended." From my observations up to the time of writing that Report, I was surprised at the statements made by some writers that patients who had passed through the career of Continued Fever were subject to relapses. While the cases which form the present collection were in progress, my attention was frequently called to the fact that during convalescence, and after patients had so far recovered as to sit up, and even walk about the ward, they were attacked with febrile movement, sometimes preceded by a chill, accompanied by anorexia, delirium. etc., these symptoms continuing for several days, when they again began to convalesce. In some instances I was disposed to attribute this recurrence of fever to imprudence in diet, exposure to cold, or over exertion, but it appeared to occur when no such cause could be assigned; and as respects the management of convalescence, the patients had the benefit of the same precautions and care as those whose histories were embraced in the first collection, and in the latter this sequence of the disease did not occur in a single instance. Moreover, the febrile movement, and associated symptoms, were out of proportion to those which might be expected to follow the imprudences just mentioned. The patients, in fact, appeared to pass through a second febrile career of short duration. This relapse of fever occurred in *fifteen* of the *forty-eight* cases. Of these *fifteen* cases, *nine* were of the *Typhoid* type, *one* was of the *Typhus* type, and *five* were cases of *Doubtful type.* I will present a summary of the recorded facts in these cases respectively.

Typhoid.

Case 1. Convalescence was pronounced in this case on the ninth day after admission. Three days afterward there occurred recurrence of febrile movement, and delirium for two nights. The last record was made on the seventh day after the date of convalescence.

Case 2. The patient was distinctly convalescent on the ninth day after admission and taking to the bed, and the eleventh day from the date of illness. Seven days afterward she had recurrence of febrile movement, tongue became dry and hard, with anorexia, thirst, etc. The pulse rose to 128 and 144. In three days after the commencement of the relapse of fever, the symptoms exhibited marked improvement, and in ten days she was up and about the ward. She left the hospital twenty-seven days after admission.

Case 3. Convalescent on the sixth day after admission, on the seventh after taking to bed, and ten from the commencement of access. Four days after date of convalescence a relapse of fever occurred, skin hot and dry, pulse 116, and at P. M., 128. The next day the symptoms exhibited improvement, and she was soon again convalescent. Left hospital twenty-seven days after admission.

Case 4. Convalescent on the eighth day after admission, and eleventh day after attack. Thirteen days after the date of convalescence it is noted that he had had a slight relapse, but was then doing well. Left hospital twenty-nine days after admission.

Case 5. Convalescent on the tenth day after admission, and thirteenth after date of attack. Five days after date of convalescence, a relapse of fever occurred, with anorexia, thirst, pain in head and limbs, congestion of face, pulse rising to 130. Continued five or six days. Remained in hospital twenty-three days.

Case 6. Convalescent on the tenth day after admission, and fifteenth after date of attack. Three days after the date of convalescence, had recurrence of febrile movement, epistaxis, etc., without any apparent cause, pulse rising to 128. The relapse of fever continued five or six days. Remained in hospital forty-one days.

Case 7. Convalescent on the eleventh day after admission, and date of taking to bed. Five days after date of convalescence attacked with chill, pain in head, anorexia, thirst, dry and hot skin, pulse 104. The tongue became dry and hard. Pulse rose to 130. Again convalescent on fifth day after second attack. Remained in hospital forty-three days.

Case 8. Convalescent on the seventh day after admission, and eighth after date of attack. He was quite well, and walking about the ward, when, eight days after the date of convalescence, he took to the bed, with chill, pain in head and limbs, anorexia, pulse 116. Relapse of fever run about five days. Remained in hospital fifty-one days.

Case 9. Convalescent on the eighth day after taking to the bed, and twelfth after date of attack. Seven days after the date of convalescence, had return of febrile movement and kept the bed for ten days. Remained in hospital forty-eight days.

Typhus.

Case 1. Convalescent on the eleventh day after admission and taking to bed. Three days after date of convalescence, had return of febrile movement, which lasted for two days. Remained in hospital sixty-three days.

Doubtful Type.

Case 1. Convalescent on the seventh day after admission. Five days after the date of convalescence, attacked with pain in head, and in chest (substernal,) febrile movement, etc. She kept her bed for ten days, when the symptoms again denoted convalescence. Remained in hospital forty-one days.

Case 2. Convalescent on the ninth day after admission and taking to bed, and thirteenth after commencement of access. Five days after date of convalescence, relapse of fever occurred, with epistaxis, and he was confined to the bed eight days.

Case 3. Convalescent on the eleventh day after admission, and sixteenth from the commencement of access. Attacked on day of convalescence with chill, followed by febrile movement, etc. Relapse of fever continued five days. Remained in hospital thirty-four days.

Case 4. Convalescent on the twelfth day after taking to the bed, and thirteenth day after commencement of access. Four days after date of convalescence, relapse of fever occurred, pulse rising to 120. Four days afterward, again convalescent, pulse being, the day before second convalescence, 104, and on the day of convalescence, 68.

Case 5. Convalescent on the eighth day after admission, the twelfth day after taking to bed, and fourteenth day after commencement of the access. Three days after the date of convalescence, relapse of fever occurred, which continued about eight days. During the second febrile career the parotid gland became somewhat swelled, which subsided in a few days, not proceeding to suppuration.

The occurrence of relapse in nearly one-third of the whole number of cases, is one of the most interesting of the results of the present investigation. The cause, or causes, evidently pertained to the disease itself, not to extrinsic circumstances, for the latter, as has been stated, in so far as they were appreciable, were the same as had before existed when in not a single instance was this sequence noted. It is impossible even to conjecture what intrinsic conditions were involved in producing a special tendency thus incident to the year in which these cases were observed. The existence of such a tendency however, is consistent with the well known fact that Continued Fever manifests, at different times, and places, certain peculiarities in the predominance of particular symptoms, the occurrence of complications, and in consecutive affections.

Relapses occurred, it will be perceived, in a larger proportion of cases of *Typhoid*, and those of *Doubtful type*, than of *Typhus*.

Another point is worthy of notice, viz., in all the cases characterized by this sequence, the disease finally ended in recovery. So far as these observations go, the occurrence of relapse of fever does not expose the patient to new dangers to life.

The inquiry may arise, whether convalescence was not prematurely pronounced in those cases in which relapses are stated to have occurred. Would it not have been more correct to have dated convalescence from the period when the so-called relapse of fever terminated? To do so, would, of course, do away with the occurrence of relapses. This inquiry suggests another fact in this section, viz., the remarkably short average duration in the cases in the present collection. This fact may seem to show that the career of the fever was not really ended in those cases in which convalescence was considered to be established, but in which febrile movement recurred after an interval of from two to five days. If the duration of the disease in these cases was estimated from the commencement to the date when convalescence was declared a second time, it would affect considerably the average, and bring it nearer that developed by the first analysis. According to this view, the peculiarity, in the present collection of cases would consist in the frequent occurrence of a kind of pseudo-convalescence, or remission of febrile symptoms for several days. But, in opposition to this view, it is to be considered, that, in the cases referred to, the evidences of convalescence, at the time it was first pronounced, appeared to be unequivocal, and, in some instances, the patients sat up, and even walked about the ward before the relapse of fever became developed. Moreover, if the first were not a true convalescence, it would be expected that in the cases characterized by relapse of fever, the duration of the disease, prior to the first convalescence, would be in a notable degree less than the average period. I have computed the mean duration in these cases prior to the first convalescence, and find it to be 9 1-15 days. This is somewhat shorter than the average duration in all the cases, which was 10 6-11 for the *Typhoid* cases, and 11 1-4 for the cases of *Typhus*. The difference is not sufficiently great to militate much against the propriety of regarding what I have called the relapse of fever, as a recurrent febrile attack, rather than a continuance of the primary disease. With respect to this point, however, there may be room for difference of opinion.

NOTE. Since this Report was completed, my attention has been called to the views of Dr. Jenner, and some other British writers, on the subject of a distinct variety or species of fever, distinguished by the title of *Relapsing Fever*, characterized by a tendency to relapses, and other peculiarities. It may be a question whether the cases in the present collection in which relapses occurred, do not belong to a distinct type of Continued Fever. I propose to analyze these cases in order to ascertain if they are marked by any other distinctive traits than the occurrence of relapses. For the results of this analysis and some remarks on the subject of Relapsing Fever, the reader is referred to the *Supplement* to the Reports.

Mode of Dying. The modes of dying, which in this, as in the first Report, will be considered to be resolvable either into asthenia or apnœa, are exhibited in the following tables:

Seven Typhoid Cases.

Case 1.—15th day after date of first record. Asthenia.
" 2.—5th day after admission. Apnœa.
" 3.—17th day after admission. (Perforation) Asthenia.
" 4.—4th day after admission. Not ascertained.
" 5.—9th day after admission. Asthenia.
" 6.—38th day after admission. (Peritonitis) Asthenia.
" 7.—2d day after admission. (Apoplectic coma) Apnœa.

Four Typhus Cases.

Case 1.—53d day (consecutive dysentery) after admission. Probably Asthenia.
" 2.—17th day after admission. (Pneumonitis set in on 12th day, when symptoms augured convalescence.) Apnœa.
" 3.—9th day after admission. Apnœa.
" 4.—9th day after admission. Apnœa.

Fatality. The number of cases that proved fatal, (eleven,) has already been stated, and repeatedly referred to. The ratio is a fraction over twenty-two *per centum.* The percentage of fatality is somewhat greater than in the former collection of cases. In connection with this point, the remark made in the former Report is applicable, viz., the proportion of fatal cases would have been less, had not all cases in which it was supposed there was any room for doubt as to the diagnosis, been excluded. Some cases which were probably cases of Continued Fever were thus not embraced in the collection and none of these were fatal cases. In a few instances, moreover, the histories were not recorded, or were found to be too incomplete to be available for the analysis. This also applied only to cases which recovered.

The ratio of fatality was considerably greater in the cases of *Typhus*, than in those of *Typhoid*, the proportion being as 4 – 10, or 2 – 5, is to 7 – 29, or a little less than one-quarter.

In the whole number of cases in both collections, the proportion of fatality is twenty-two *per centum.*

Adding together the cases of *Typhus* and *Typhoid*, respectively, in the two collections, and the result is, *fifty-nine* cases of *Typhoid*, and *twenty-three* cases of *Typhus*. The ratio of fatality to the whole number of cases of each type, thus added, is as follows: Of the *fifty-nine Typhoid* cases, *twelve* were fatal, i. e. a fraction over *twenty per centum.*

Of the *twenty-three* cases of *Typhus*, *eight* were fatal, i. e. a fraction less than *thirty-five per centum.*

These observations, thus, show in the two collections, separately and conjointly, a proportion of fatal cases considerably greater in the *Typhus*, than in the *Typhoid* type of Continued Fever.

The fatality from Continued Fever at different times, even when patients are placed in the same situation, and exposed to similar influences of hygiene, treatment, etc., has been found to undergo considerable fluctuations. This is shown in the Report of Dr. Jackson, of Boston, of the cases of *Typhoid* fever received at the Massachusetts General Hospital, for fourteen consecutive years. The variations in fatality during that period, from year to year, were between a *minimum* of a proportion of 1 to 3 1-2, and a *maximum* of a proportion of 1 to 25! Subsequently, at the same hospital, of *fifty-five* successive cases received from Nov. 1836, to Nov. 1838,* *not a single death occurred!* Louis states that a third of the patients, observed by him, affected with *Typhoid* fever, have died. These facts suffice to illustrate the striking contrasts as respects the rate of mortality that are presented in different years, contrasts which can only be accounted for by differences in the tendency to a fatal issue inherent in the disease at different periods. This feature in the history of Continued Fever, is not only interesting, but one which it is highly important should be borne in mind when we would estimate the effect of therapeutical, and other agencies, by the proportion of fatal cases.

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* Hisory, etc., of Fever, by Prof. Elisha Bartlett.

The deaths that occurred during the period in which the present collection of cases was made, were by no means equally distributed among the several months. Of the *eleven Typhoid* cases in the month of *October*, *four* were fatal. Of the *eight* cases in *November*, *all* recovered. Of the *eight* cases in *December*, *three* were fatal. The fatal *Typhus* cases were as follows: the only *two* cases that occurred in October, and *two* of *five* cases in March. *Two* cases which occurred in December, and *one* case in April recovered.

The number of cases, although few, suffice to exemplify a greater tendency to a fatal result in some of the successive months of the same season than in others, a fact already developed by more extended observations.

SECTION TWELFTH.

Examinations after Death.

In the instances in which examinations after death were practicable, the objects were necessarily limited to the disclosure of characteristic lesions, in order to verify the diagnosis, and to exhibit them in connection with clinical instruction at the hospital. Want of leisure, and of proper facilities precluded complete autopsical investigations embracing an inspection of all the important organs of the body. The examinations were generally confined to the small intestine, mesenteric glands and spleen, in some cases extending to other parts to which prominent symptoms during the progress of the disease were referable.

Examinations, limited as just stated, were made in *five* of the *seven* fatal cases of *Typhoid*, and in *two* of the *four* fatal cases of *Typhus*.

The morbid appearances, so far as noted in the histories of the cases, respectively, are as follows:

Typhoid.

Case 1. *Death on the fifteenth day after the date of the first record. Patient a porter in hospital, and had been in hospital for some time for chronic ulcer of the leg. Mode of dying by asthenia. Intellect clear a short time before death.*

Abdomen. The ilium presented a series of oval excavations situated in the Peyerian patches, the largest, near the cœcum, being about an inch and a half in length, and three-fourths of an inch in width. The mucous membrane was destroyed over this, and several of the excavated spaces above, and their surfaces appeared to be covered with a very delicate, transparent serous-like membrane, beneath which could be seen the fibres of the muscular tissue of the intestine. The Peyerian patches removed a few feet from the cœcum, were thickened and softened, not ulcerated. Several of the solitary glands, situated in the lower portion of the small intestine, presented the sites of ulcerations, or excavations, the surfaces covered with a delicate membrane.

Mesenteric glands enlarged. Peritoneal cavity contained about a pint of turbid serum.

Spleen enlarged and softened.

No note of other morbid appearances.

Case 2. *Death on the seventeenth day after admission. Perforation of intestine.*

No note of the appearances in this case was made until four weeks after the examination. It was omitted through inadvertence. The facts noted after the interval just mentioned, are the following: The ilium exhibited the characteristic lesions of Peyer's patches, the ulceration being, for the most part, cicatrized. A perforation in one of the ulcerated spaces was discovered. The perforation, manifestly, was not from progressive ulceration through the coats, but from rupture, the points at which it existed being cicatrized.

Mesenteric glands enlarged.

Spleen enlarged and softened.

Evidences of peritoneal inflammation existed, viz., effused serum and fibrin.

Case 3. *Death on the morning of the fourth day after admission. Had been ill about ten days prior to admission. Active delirium existed before admission. Mode of dying not determinable by the history. Autopsy twelve hours after death.*

Head. Some subarachnoid effusion, and about an ounce of serum (estimated) in arachnoid cavity. Moderate congestion of vessels of brain. No effusion of fibrin, or opacity of arachnoid.

Abdomen. The ilium inspected for the space of about three feet above the cœcum. A large ulcerated patch of Peyer close to the cœcum, projecting from two to three lines above the plane of the mucous surface, and presenting a granular, jagged appearance. Above this point the Peyerian patches were salient, presenting an ulcerated surface, but, progressively, less and less in ascending the tube.

Numerous solitary glands projecting and ulcerated.

Mesenteric glands greatly enlarged — as large as filberts nigh to the cœcum.

Spleen enlarged, but did not appear to be abnormally softened.

Heart normal.

Case 4. *Death on the ninth day after admission, date of commencement of febrile career not ascertained. Mode of dying by asthenia, pulse becoming extinct several hours before death, and mind apparently clear. Complicated with pneumonitis. Age of the patient about fifty years.*

Head. Not examined.

Chest. Lungs on left side presented deep engorgement. In the right chest the inferior lobe non-crepitant, œdematous, pitting on pressure; copious serous exudation on section, not spumous. About a pint of turbid serum contained within right chest. Slight fibrous exudation on pleural surface of the solidified lobe. The remaining lobes crepitant, and not greatly congested.

Abdomen. Ilium presented Peyerian and solitary glands ulcerated, but in process of cicatrization, the surfaces being smooth, not granulated.

Affection of Peyerian glands gradually diminishing on ascending the tube.

Mesenteric glands moderately enlarged.

Spleen of about medium size, and softened.

Kidneys normal.

Liver presented no abnormal appearances.

Case 5. *Death, on the second morning after admission, in apoplectic coma. Had been ill four or five days before admission, but it is not stated whether confined to the bed or not. Age of the patient thirty-eight.*

Head, first examined.

Considerable congestion of vessels of brain. Moderate increase of subarachnoid effusion. About an ounce of serum in arachnoid cavity.

Chest. Left lung firmly adherent with old pleuritic attachments. Considerable engorgement of lungs.

Heart normal.

Abdomen. Ilium contained thin yellowish matter. Peyer's patches prominent, and mucous tissue softened.

Mesenteric glands not enlarged. Solitary glands or lower part of ilium enlarged, giving the appearance of a papular eruption. Other portions of mucous tissue presenting nothing morbid.

Spleen enlarged and softened.

Kidneys enlarged, flabby, presenting some degree of granular degeneration.

Typhus.

Case 1. *Death on the seventeenth day after admission, and twenty-first after date of attack. Symptoms of pneumonitis on the twelfth day after admission. Mode of dying, by apnœa. Examination sixteen hours after death.*

Chest. Inferior lobe in left chest completely solidified. Pleuritic adhesions over this lobe. About half a pint of turbid serum in left pleural cavity. Upper lobe free from disease. Right lung free from disease. Hypostatic congestion of lower lobe.

Heart presented no morbid appearances.

Abdomen. Ilium inspected for several feet above the cœcum. A single Peyerian patch nigh to the cœcum developed so as to be visible, presenting the *shaven beard* appearance. None other discoverable. The mucous surface through the whole space inspected, presented a series of arborescent vessels, the direction being transverse as respects the intestine.

Mesenteric glands not enlarged.

Spleen about medium size, and softened.

Case 2. *Death on the ninth day after admission and date of taking to bed, and eleventh day from commencement of access. Mode of dying, by apnœa.*

Abdomen. Peyerian patches developed so as to be visible.

Mesenteric glands very slightly enlarged near the cœcum.

Spleen not enlarged, nor softened.

Kidneys, liver, and heart, presented no morbid appearances.

As the correctness of the diagnosis is an important point, taken in connection with the intestinal appearances on the two fatal cases of *Typhus* in which examinations were made, I will give a succinct statement of the symptoms, in the history of each, which have an especial bearing on this point.

Case 1. In this case diarrhœa did not occur. Much of the time the abdomen was flaccid, but occasionally slight tympanites. Slight tenderness existed·

On the eighth day a faint maculated eruption was apparent. It was visible for three days. Its characters are not minutely described, but rose spots and maculæ are said to have been intermingled.

Epistaxis did not occur.

Muttering delirium was a prominent symptom, and became developed on second day after admission.

Capillary congestion of the surface was marked.

Case 2. Diarrhœa was not present in this case, nor tenderness, save that on one day he made complaint when firm pressure was made over the abdomen. Slight meteorism existed at first, but not afterward.

Delirium was a prominent symptom, consisting in incoherent muttering, and efforts to get out of bed.

The face presented deep congestive redness.

On the second day after admission and date of taking to bed, a copious dusky eruption appeared over the abdomen and chest, extending to the upper and lower extremities. The eruption was maculated, redness not disappearing on pressure. The eruption in this case was very copious, being almost confluent over the abdomen, and extended over the upper extremities, even to the back of the hands.

SUPPLEMENT

TO

REPORTS ON CONTINUED FEVER.

SYMPTOMS DISTINCTIVE OF TYPHOID AND TYPHUS FEVER. IDENTITY OF THESE TWO TYPES. DIAGNOSIS, ETC.

In the preceding investigations, Continued Fever is considered under two forms, or types, distinguished by the names of *Typhus* and *Typhoid.* It has been a leading object in these investigations to study the symptoms, etc., belonging to each of these types, separately, and by comparison as respects the results developed by analytical examination. Connected with this nosological subdivision of Continued Fever are several questions of interest and importance, the discussion of which would have been out of place in Reports devoted to historical facts, but which invite supplementary consideration. These questions pertain to — 1st. The propriety of the division into *Typhus* and *Typhoid* fever, and the validity of the distinctive symptoms upon which that division is based; 2d. The essential identity or non-identity of *Typhus* and *Typhoid* fever, and the relationship existing between the two types; 3d. The diagnostic traits involved in the discrimination of *Typhus* and *Typhoid* fever from each other, and of Continued Fever from other affections.

What views relating to the foregoing subjects are most consonant with the results and conclusions set forth in the two Clinical Reports that have preceded? In the few remarks which will follow, I purpose to confine myself, mainly, within the scope of this inquiry, not professing to measure the range of discussion by the amplitude of the subjects, nor undertaking to collect from available sources all that has an important bearing thereupon.

A brief sketch of the *symptoms distinctive of Typhus and Typhoid fever* which are embraced in the two Reports, will form a proper preliminary to a consideration of the several points just named. In order to study the phenomena of the two types separately, and comparatively, it was, of course, necessary, as a primary step, to make the distinction of type, and arrange the cases in corresponding groups. In so doing, it is obvious that the existence of symptoms distinctive of either type is predetermined, and the results of the comparison of the two types, in this respect, in a measure forestalled. The application of rules for discriminating between the two types is thus to be made in collecting facts which are to test the correctness of these rules. This was unavoidable, but it will be found to have had its advantages, showing in how far obvious external distinctive symptoms are practicably available for the discrimination. In classifying cases in order to bring the results of the analysis of each type into comparison with those of the other, it is evident that accuracy of discrimination is indispensable. Unless cases which are grouped as *Typhus* and *Typhoid* are correctly collocated, the conclusions cannot fail to be erroneous. With reference to this point, as stated in the Reports, all cases in which there appeared any room for uncertainty respecting the type to which they belonged, were classed by themselves under the head of *cases of Doubtful type.* In this way, it is presumed, the liability to error on the score just mentioned, was obviated. In making the discrimination practically, those rules were followed which are laid down by late writers, and more especially in the able and lucid treatise by Prof. Bartlett.

In proceeding to give, succinctly, the more important of the facts, contained in the two Reports, which appear to present traits distinguishing the two types from each other, it will be convenient to follow an order of arrangement corresponding with the successive sections in both Reports.

SUMMARY OF SYMPTOMS DISTINCTIVE OF TYPHOID AND TYPHUS FEVER.

Age. The maximum and mean age higher in *Typhus* than in *Typhoid.*

Nativity. In *Typhoid,* patients foreign immigrants from different countries, with a certain proportion of citizens of this country. In *Typhus,* foreign immigrants except when the disease is communicated by contagion, and almost invariably the immigrants recently from Ireland.*

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* It will be borne in mind that this summary embraces the conclusions deduced from the facts contained in the previous Reports. Were it extended so as to embrace con-

Season. The liability to *Typhoid* much greater during the autumnal months; *Typhus* equally and even more apt to occur during other portions of the year.

Duration of disease prior to admission into hospital. In a marked degree shorter in *Typhus* than in *Typhoid.*

Symptoms of access. Diarrhœa present in a certain proportion of cases in *Typhoid* during the access, not in *Typhus.*

General aspect. Capillary congestion of the face, extending frequently to the extremities, and more or less over the body, causing a dull red color, present in *all* cases of *Typhus,* and in a large proportion of the cases of *Typhoid;* but the congestive redness greater in *Typhus* than in *Typhoid,* and presenting in some cases of the former type a dusky or dingy hue.

Nervous System. *Passive delirium,* manifested by incoherent talking, muttering, attempting to get out of bed, etc., present more constantly in *Typhus;* developed earlier in the progress of the febrile career in *Typhus;* but very active, persistent delirium, requiring forcible restraint, characteristic of *Typhoid.*

Cephalalgia, oftener present after the fever becomes established, and longer in duration in *Typhoid,* (? see second Report.)

Vascular injection of conjunctiva oftener present in *Typhus,* (? see first Report.)

Deafness, present in a proportion of cases larger in *Typhus.*

Digestive System. *Appetite,* or relish of food, oftener present in *Typhus,* (see second Report.)

A reddened tongue, occasionally observed in *Typhoid,* and not in *Typhus.*

Sordes present in a larger proportion of cases of *Typhus.*

Vomiting, more apt to occur in *Typhoid.*

Diarrhœa, present in *one-half* of the cases of *Typhoid,* and in *one-third* of the cases of *Typhus;* in the latter type always mild or slight, but in the former sometimes prominent as a symptom.

Hæmorrhage from the bowels, characteristic of *Typhoid.*

Tympanites, present in about an equal ratio in both types; but in *Typhus* almost invariably slight, while in *Typhoid* it is often prominent.

Tenderness on pressure over the abdomen, an almost constant symptom in *Typhoid,* and less frequently present in *Typhus.* In the latter usually slight, and in the former more apt to be marked, or considerable in degree.

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clusions deduced from facts contained in other analyses, it would not only comprehend additional distinctive symptoms, but some of those which it embraces might require qualification. This note is suggested by what is stated under the head of nativity.

Peritonitis from perforation of intestines, peculiar to *Typhoid.*

Eruption. An eruption present in a larger proportion of cases of *Typhus*; more abundant in *Typhus*, frequently very copious, and extending over the upper extremities, as well as on the trunk; in *Typhoid* seldom copious, often only sparely scattered over abdomen and chest, and not present in the extremities. The character of the eruption as follows: In *Typhoid*, rose colored, oval, slightly elevated, redness momentarily disappearing on pressure. In *Typhus*, of a dull red color, smaller in size, not elevated, redness imperfectly disappearing on pressure. These characters preserved in the two types in the great majority of cases. Occasionally slight variations, and some intermingling of the two kinds of eruption.

RESPIRATORY SYSTEM. *Cough* more uniformly present in *Typhus* (?).

Pneumonitis more apt to be developed in *Typhus* (?).

Epistaxis extremely rare in *Typhus*, occurring frequently in *Typhoid.* Sputa detached from the posterior nares apt to be tinged with blood in *Typhoid*, not in *Typhus.*

CIRCULATION. Greater frequency of the pulse in *Typhus* than in *Typhoid.* The average frequency of the former exceeding an hundred per minute, in the latter falling below that number. Instances of great increase in frequency occurring oftener in *Typhus.*

SKIN, exclusive of eruptions and congestive redness, not presenting symptoms distinctive of either type.

Duration, longer, before death, or convalescence, in *Typhoid*, than in *Typhus*, this rule being subject to variations, owing to an unusually short duration of the *Typhoid* type at some periods. (See second Report.)

The foregoing summary contains several striking points of contrast pertaining to the symptomatology of the two types of Continued Fever, corresponding in the main with facts heretofore contributed by different observers. In no important particulars do the results of the preceding analyses directly conflict with those which furnished the distinguishing traits of *Typhus* and *Typhoid* fever as laid down in the treatise by Bartlett and some other systematic works. In so far as these results go, they concur in sustaining the correctness of this nosological division of Continued Fever, and exemplify the distinctive symptoms upon which it rests.

It is, however, to be borne in mind, that in arranging the cases for analysis, a certain number were classed under the head of *Doubtful type;* and the question arises, why were not the symptoms distinctive of *Typhus* and *Typhoid* applicable to these as well as to the others? This is a question not to be overlooked, but it will be more appropriately considered in connection with the subject of *diagnosis*, and is, therefore, for the present deferred

The lesions found after death in the two types supply important distinctions. But aside from these, the propriety of the nosological division seems sufficiently established; and they will be more especially involved in the subject next to be considered.

IDENTITY OF TYPHUS AND TYPHOID FEVER.

It has been, of late years, a mooted question, even with those who recognize the propriety of the nosological division of Continued Fever into *Typhus* and *Typhoid*, whether these two types are essentially identical, or not. What relationship do they sustain toward each other? Are they simply varieties of one disease, or are they distinct affections? These inquiries claim a few remarks.

In the summary of distinctive traits which has been presented, facts appear to show the existence of different laws as respects *age*, *season*, *duration*, and various *symptoms* pertaining to the several anatomical systems in which these symptoms are distributed. These facts concur with those developed, in the same manner, on a more extended scale, by other analyses. The latter, moreover, appear to show additional laws pertaining to the causation, transmission by contagion, etc., which it does not fall within my present plan to consider, having restricted myself, mainly, to the results of the analytical investigation of the limited number of cases embraced in my own collections.

Both *Typhus* and *Typhoid* may be considered, in a measure, eruptive fevers, and in all eruptive affections, difference in the character of the eruption, provided it be marked, and constant, is regarded as denoting a difference in the character of the disease. Now, the characters belonging to the *Typhus* and *Typhoid* eruptions are by no means identical. The resemblance is hardly greater than between Scarlatina and Rubeola in this respect. As a general rule, also, it would seem that the eruption peculiar to either type maintains its distinctive characters, but this rule is not invariable. An eruption is occasionally observed presenting a combination of the characters belonging to both types. Such instances are probably few, and perhaps do not oftener occur, and not to a greater extent than in measles and scarlet fever. In this connection it may be remarked that the fact of the distinctive traits pertaining to the eruption, and other symptoms, having been so recently pointed out, cannot be considered as evidence against the non-identity of *Typhus* and *Typhoid* fever, for, with respect to Rubeola and Scarlatina, although no one now regards them as merely different varieties of the same disease, it is but little more than half a century since they were so regarded, and at a period not very remote, small pox was included in the same category.

The lesions found after death have an important bearing on the present subject. On behalf of the non-identity of the two types, it is claimed that *Typhoid* fever is characterized by special morbid changes seated in the aggregated and solitary follicles of the small intestines, accompanied by enlargement of the mesenteric glands. The spleen, also, is said to be generally enlarged and softened. These lesions, more particularly the intestinal, it is stated, are peculiar to *Typhoid* fever, being uniformly found after death, in cases proving fatal, and not found in bodies dead with other acute diseases. In *Typhus*, on the other hand, these lesions, especially those noted in the follicles, are declared to be invariably absent.

On this subject the preceding Reports contain the results of a few observations, upon which, as yet, no remarks have been offered, notice of them having been reserved for this connection. Of the fatal cases, the bodies were examined with particular reference to the lesions deemed to be characteristic of *Typhoid* fever in *twelve*. Of these cases, *nine* had been classed under the head of *Typhoid*, judged by the symptoms, and *three* under the head of *Typhus*.

On reference to the description of the morbid appearances in these cases, severally, it will be seen that in each of the *nine Typhoid* cases there existed notable changes in the intestinal follicles accompanied by corresponding degrees of enlargement of the mesenteric glands. The follicular lesions consisted either of considerable tumefaction, rendering the patches very prominent and salient, due manifestly to a deposit of some morbid material in these parts, the surfaces being more or less roughened or presenting a granular appearance, in other words ulcerated; or there existed in the sites of the follicular patches depressed spaces which presented in some instances an ulcerated aspect, and in other instances a smooth healthy surface. The latter appearance seemed to have resulted from an elimination of the morbid material producing the appearances first mentioned, a kind of sloughing, with a corresponding loss of substance, or ulcerated excavations, which subsequently healed. I have observed, although I have failed to record this fact, the sloughing process just referred to, partially completed in some patches, a portion of the patch being excavated, and the remainder still occupied with a material apparently in the process of separation.

The changes in the spleen were less constant. This organ, however, as is well known, varies considerably in bulk within the limits of health, and alterations in consistence are less appreciable than in other parts of greater normal firmness of structure.

In each of the *three Typhus* cases, on the other hand, there existed changes in the follicular patches, accompanied, in *two* cases, by very slight enlargement of the mesenteric glands. The follicular lesions, however, were insignificant in comparison with those observed in the *Typhoid* cases. The patches were simply developed so as to be visible. They were slightly hypertrophied, not projecting several lines above, or depressed below the level of the mucous surface, as in the *Typhoid* cases, and in no instance presenting an ulcerated aspect. The contrast, indeed, was scarcely less striking than if, in the *Typhus* cases, the follicles had remained invisible.

The united number of observations, thus, which are contained in the preceding Reports sustain the existence of characteristic lesions of the intestinal follicles and mesenteric glands in *Typhoid* fever, but they also show that these parts do not always continue wholly unaffected in *Typhus*. The fatal cases of the latter type, in which post mortem examinations were made, are few in number, but they are sufficient to establish the fact that the intestinal follicles and mesenteric glands may be, to some extent affected in that type, provided it be certain that the diagnosis of the cases was correct, and of this fact ample evidence is adduced from the histories in connection with the descriptions of the post mortem appearances.

As before stated, the present scope of inquiry does not embrace a collection and critical examination of all the available facts bearing on the point under consideration which have been contributed by different writers. It is well known, however, to those at all conversant with the literature of the subject, that several distinguished observers have testified to the invariable absence of the abdominal lesions of *Typhoid* fever in numerous cases falling under their observation in which, during life, were presented the symptoms distinctive of *Typhus*. The most remarkable testimony of this description is by Dr. Gerhard, of Philadelphia, to whom, more than any other individual, is due the merit of having pointed out the distinguishing features belonging to *Typhus*, contrasted with *Typhoid*, derived from the study of the symptoms during life, as well as the post mortem appearances. In over fifty autopsies he found no deviation from the normal condition of the Peyerian glands except in a single instance, and in that case the diagnosis* was doubtful.

On the other hand, cases have been reported in which the follicular glands of the intestine have presented more or less alteration in cases in which, during life, the peculiar eruption, and other symptomatic characters of *Typhus* were observed. The most remarkable testimony of this description is by M. H. Landouzy, of France, who affirms, that in an epidemic at the prison of Rheims, during which one hundred and thirty-eight cases occurred, the histories embracing the characteristic eruption and other distinctive features of *Typhus*, six autopsies were made, and the elliptical plates of the ilium, in all, found to be either thickened, elevated, or *ulcerated*.* Prof. Bartlett, who advocates the opinion that the two types are radically distinct affections, admits that the paper of M. Landouzy throws some doubt on the subject. Without having seen the original paper it would be unfair to offer criticisms, or to conjecture sources of error. The remark, however, may be admissible, that in accepting results which, in the present position of the subject, are so important in their bearings, it should be understood, in the first place, that the symptomatology of the cases was deduced from recorded data, and more especially that the histories of the six fatal cases referred to were noted at the bed side; and, in the second place, that the appearance of the intestinal lesions were fully described. In the absence of that confidence arising from personal knowledge of the historian, the above precautions are requisite as a guaranty, on the one hand, that, in the epidemic described, cases of both types of Continued Fever were not intermingled and confounded, and, on the other hand, that the follicular intestinal changes were not within the limits in which, as must be admitted, they may be present in fatal cases of well marked *Typhus*. From the abstract of the paper given in the treatise by Bartlett, it does not appear whether the account of the epidemic is based on an analysis of recorded observations, or not. By these remarks I would by no means be understood to express the opinion that observations must necessarily be recorded to merit any confidence, or possess value. Such an opinion would be as absurd, as that all observations which are recorded, as a matter of course, are reliable and important. The idea intended to be conveyed is, that every provision for accuracy should be required before accepting, as valid, observations which conflict materially with other well-authenticated facts, and in the correctness of which highly important principles are involved.

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* Am. Jour. Med. Sciences, 1837.

The following extract from an article contained in the British and Foreign Medico-Chirurgical Review, [No. for July, 1851, Am. Edition, page 26,] gives a fuller account of the facts reported by M. Landouzy, than I have met with elsewhere. The article referred to had not appeared when the foregoing remarks were written. The reader will doubtless concur in the opinion expressed by the reviewer in the closing sentence of the extract:

"Seventeen cases died, of whom six only were examined, *and only two cases are recorded*. The first case was indubitably typhus; the mulberry rash was well marked. Landouzy says he 'looked in vain for the rose-spots of typhoid fever which existed among other patients.' Nevertheless, at the necropsy he found alteration of Peyer's patches. But after careful examination of the report, we have great doubt on this head. The small intestines were first examined by M. Chabaud and two other physicians, and *pronounced to be sound;* then M. Landouzy entering and re-examining it, detected what he considered evidence of incipient change in Peyer's patches, with general slight tumefaction of the solitary glands. But we doubt whether M. Landouzy has made out his case; the alterations he signalizes are not sufficiently defined to bring it within Louis' definition of typhoid fever.*

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* Bartlett's Treatise, from *Archives Generales de Medicine*. 1842.

Now, since these are the only two recorded cases, and neither of them is satisfactory, and since only four other post-mortem examinations were made, the details of which are not given, and the value of which is, therefore, necessarily shaken by the exception we must take to the two recorded cases, we do not think we can do otherwise than consider that the importance of this memoir of M. Landouzy has been very much overrated, and that the facts recorded in it cannot be received without the greatest doubt, as evidence on this point.† We feel no hesitation, then, in putting this memoir aside, as being indefinitely precise, and based on far narrower details than the writings on the other side of the subject."

That the intestinal follicles may become affected in some manner, and to a greater or less extent, in *Typhus*, is certain. But it is, perhaps, a question yet remaining to be settled definitively, whether in *Typhoid* fever these parts are not the seat of *lesions of a special character* which are never found in *Typhus*. Putting aside the paper of M. Landouzy, I cannot refer to any observations showing the existence of lesions corresponding to those presented in the nine fatal *Typhoid* cases the histories of which, with the autopsies, are embraced in my collections, when it was perfectly clear, *from the symptoms noted at the bed side*, that the disease was of the *Typhus* type. I do not affirm that no such observations have been contributed, but only that, if they exist, I am unable to refer to them, not professing to have bestowed, in connection with this discussion, sufficient search to warrant a positive assertion that they are not to be found.

Another question arises in connection with the subject of the abdominal lesions in Continued Fever. It is this:—Assuming that changes characteristic of *Typhoid* fever exist, are they uniformly present in cases of that type?

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* The appearances Landouzy describes are perfectly well known to the German observers as dependent on a "catarrhal condition" of the intestinal mucous membrane, which may occur in typhus, as in pneumonia, or any acute disease. No accurate observer could confound this with typhoid deposit in and under Peyer's patches.

† Landouzy himself perceives so many differences between typhus and typhoid fever, that in spite of his belief that he had found the anatomical sign of typhoid in typhus, he writes: "I find between the typhus of Rheims, and the typhoid fever, too striking differences to allow me to regard these two maladies as identical." He says, however, that they are analogous, but not identical.

They are, of course, only susceptible of demonstration in cases proving fatal, by examinations after death. Is more or less disease in the follicles and mesenteric glands an essential constituent of *Typhoid Fever?* This question involves a correlative inquiry, viz., are cases of Continued Fever in which the follicles are unaffected necessarily cases of *Typhus?* These questions are important, but the Reports to which these remarks are supplementary, do not contain any facts bearing upon them. Louis, whose researches established the significance of these lesions as the "*anatomical characteristic*" of *Typhoid* fever, evidently formed the conclusion that they constituted an essential element of the disease, before the analysis of the cases in his collection was completed, for he excludes cases in which were present the important symptoms of the disease, but in which the intestinal lesions were absent. He classes such cases under the head of "*Simulated cases of Typhoid affection.*" In the remarks succeeding the history of one of the cases under this caption, he holds the following language: "This fact presents, as we see, the union of almost all the characteristic symptoms of the *Typhoid* affections.. At the commencement there was diarrhœa, alternating with drowsiness and delirium; shortly after there were pains of the abdomen, more or less decided meteorism, which continued until death; after these, eschars on the sacrum and great trochanters, and return of delirium. *What more was wanting to make us certain that the patient was affected with the Typhoid disease, and that we should find, on opening the corpse, the elliptical patches of the small intestine more or less seriously altered? Notwithstanding this, the patches and the corresponding mesenteric glands were healthy, and with the exception of a small extent of the mucous membrane of the colon, the whole intestinal canal was natural, and how, then, can we admit that this patient had the Typhoid affection.*" *

It is clear from the above quotation, a portion of which I have italicized, that, after proceeding a certain length in his investigations, Louis fixed upon the intestinal lesions as a constant element of the disease. At whatever period in his researches this conclusion was formed, it would necessarily follow that all subsequent cases of *Typhoid* fever proving fatal would have the lesion, since if the lesion was absent, the disease was not to be considered *Typhoid* fever! Plainly, in prosecuting a series of autopsical examinations with a view to settle the point of the constancy of special changes in a disease, the presence of the disease must have been determined, in order to avoid a *petitio principii,* by other criteria than the changes which are the objects of search.

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* Louis, on Fever. Translated by H. I. Bowditch, M.D., vol. ii, page 371.

If this criticism be just, it follows, that a case exhibiting "an union of almost all the characteristic symptoms of the *Typhoid* affection," and in which nothing "more was wanting to make us certain that the patient was affected with the *Typhoid* disease" than that the elliptical patches should be found affected, must be regarded as neither more nor less than a case of the *Typhoid* affection, as was pronounced prior to the autopsy. Other cases detailed by Louis in the same category, as cases of simulated *Typhoid* affection, are perhaps to be considered veritable cases of this disease equally with that to which reference has just been made. Assuredly, it is by the ensemble of symptoms during life that the determination of the type of fever is to be made, not to say that in fatal cases more or less importance does not belong to the lesions, either in confirming or correcting the diagnosis. A post mortem test, it is obvious, is too unseasonable for all the practical purposes of diagnosis, and in cases in which recovery takes place, is wholly inapplicable. Were it generally impossible to decide between the two types of Continued Fever, during the life of the patient, by distinctive symptoms and laws, the propriety of even a nosological division could not be sustained, and the question of non-identity would be inadmissible. The intestinal lesions now regarded by many as characteristic of the *Typhoid* type, would then be entitled to be considered to be merely complications more or less frequently present in cases of Continued Fever. This is, in fact, the view taken by some writers, who contend that the distinctive symptoms of the two types are not valid, or that they cannot be relied upon for diagnosis. Persons holding this view, as a matter of course, regard the intestinal lesions as incidental events which may, or may not be present; but if they do not practically make the distinction between *Typhus* and *Typhoid*, according to the diagnostic traits deduced from analyses at clinical data, it is plain that they cannot bring the fact of the absence or presence of these lesions in individual cases under their observation to bear on the question of the identity or non-identity of the two types. This, then, is the point which I would enunciate: The determination of the question whether a particular case of Continued Fever be of the *Typhus* or *Typhoid* type, should not rest exclusively on the presence or absence of certain intestinal lesions. It cannot so rest, it is evident, unless the diagnostician, has always the advantage of an autopsy. But, irrespective of this, the basis of the division into the two types is the *ante-mortem* history. Do the two types possess sufficiently distinctive traits to be nosologically separated? If so, the distinction is undoubtedly in no small measure, strengthened by the fact that certain special lesions are peculiar to one of the types. This is a point to be demonstratively established by examinations after death of cases in which the *Typhoid* traits were unequivocally declared during life. So, also, the question whether the lesions peculiar to one of the types are invariably present, is to be settled by repeated examinations after death of cases in which the distinctive traits of that type were exhibited during the progress of the disease. The latter question, as well as the former, should thus be fairly and fully met by an appeal to observation. It has been seen that, in accordance with this view of the subject, it may probably be proved by reference to Louis' own collection of histories, that *Typhoid* fever may exist, and prove fatal without disease of the follicles and mesenteric glands. Other cases have been reported. Prof. Bartlett refers to several, in some of which he appears to think there may have been room for doubt as to the correctness of the diagnosis, and in one striking case in which no suspicion on this score could be entertained, he conjectures that the *Typhoid* lesions had existed, all traces of which disappeared before death; Louis propounds the latter as an hypothesis which would account for the absence of these lesions in the cases supposed by him to be cases of *Typhoid* fever prior to the autopsies, but he prefers to regard them as cases simulating the disease.

The point under consideration must be considered, to say the least, unsettled. Do cases exhibiting during life an assemblage of symptoms sufficient to render it clear that they are cases of the *Typhoid* type of Continued Fever, in the event of their proving fatal, *always* present the lesions which are regarded as characteristic of this type? A farther collection of facts bearing on this inquiry is to be desired. Should the inquiry be settled conclusively (if it be not already) in the negative, then it remains to ascertain, by aggregated observations, in what ratio of *Typhoid* cases these lesions are present.

The connection of this point of inquiry with the subdivisions of Continued Fever is obvious. If it be decided to call those cases only of Continued Fever *Typhoid*, in which these lesions are present, what shall be done with cases of Continued Fever in which these lesions are absent? shall all be set down as cases of *Typhus*, whether the distinguishing traits of the latter type were present during life or not? The effect of this would obviously be to impair the significance of the symptomatology of the latter type; but as the point of the departure for the question is believed to be wrong, it is hardly worth while to pursue the topic.

There is still another question connected with the intestinal lesions of *Typhoid* fever opening up a subject which it is foreign to my present design to consider at any length, but which calls for a brief passing notice. What relations do these lesions sustain to the disease, i. e. to the Fever? Louis indicates these relations by the expression "*anatomical characteristic.*" By this expression he evidently means to convey the idea of a peculiar, intrinsic element of the disease. He does not regard *Typhoid* fever as simply a follicular enteritis, as has been somewhat pertinaciously reiterated by those not conversant with his writings. A view essentially similar appears to be taken generally by those who look upon these lesions as exclusively belonging to the disease. If the latter opinion be correct, there must exist some special relations between the lesions and the intimate pathological condition constituting *Typhoid* fever; but respecting the character of these relations, it is in vain, with our present pathological knowledge, to inquire. We are, however, not more in the dark here, than with regard to other events in the history of the disease, for example the characteristic eruption. It is difficult to say in what way, and to what extent, the presence of these lesions modifies the course of the disease. They expose the patient to the danger of perforation; and, if extensive and severe, they cannot fail to add to the gravity of the symptoms. Diarrhœa and hæmorrhage are probably due to this cause. It is reasonable to suppose that the more frequent and greater tenderness and meteorism in *Typhoid* fever are owing to the same cause. Convalescence, doubtless, is often retarded by the persisting morbid condition of the follicles and mesenteric glands, and, where the lesions are considerable, they may suffice to destroy life when otherwise the recuperative energies of the system would triumph.

Finally, facts pertaining to distinctive symptoms and lesions, appear to favor the views of those who hold to the non-identity of *Typhus* and *Typhoid* fever. But in arriving at this conclusion a fair allowance should be made for the points of agreement between the two types, not confining the attention wholly to the points of contrast. On instituting a comparison in this point of view, it must be admitted that several important elements are common to both. This is sufficiently apparent on reference to the results of the analytical investigations of cases of the two types. But with reference to this point it is to be remarked that several important elements are common to all fevers, and, indeed, not to fevers alone, but other acute affections. And this remark is so applicable to the group of symptoms common to *Typhus* and *Typhoid*, that it is customary, both in medical writings, and conversation, to apply the term *Typhoid* to denote resemblances occasionally presented in various diseases. Thus we have *Typhoid pneumonia*, remitting or bilious fever with *Typhoid* symptoms, etc. A group of symptoms denoting a morbid condition analogous to that observed both in *Typhus* and *Typhoid* fever, commonly known as the *Typhoid state*, as all practitioners are aware, is recognized in affections which no one thinks of regarding as identical. Community in symptoms which do not exclusively belong to Continued Fever, but are occasionally observed, to a greater or less extent, in various affections, although doubtless evidence of relationship between the two types, cannot be considered adequate to establish their identity, so long as numerous and striking differences point to an opposite conclusion.

To decide that the *Typhoid* and *Typhus* forms of Continued Fever are not identical, is not to determine the kind and degree of relationship existing between them. With respect to the latter topics of inquiry, it is not easy, in the present state of knowledge, to arrive at any very precise ideas. In all fevers, as well as various other affections, there is an inappreciable pathological condition underlying the appreciable phenomena which constitute their natural history. The latter, for the most part, are the objects of investigation, the former lies in the *terra incognita* of science. Were we able to push our researches so far as to grasp the prime essential changes in which disease consists, and thence to trace, synthetically, the train of sequences to which, with our present means of investigation, we are mostly restricted, we might expect to define with exactness the real distinctions and affinities existing among different affections. As it is, we must judge in how far diseases are kindred, or foreign to each other, chiefly by inferential reasoning, based on a comparison of phenomena and their laws; and our conclusions cannot be expected to be more than approximations, more or less remote, to the truth.

That the two types of Continued Fever, *Typhus* and *Typhoid*, are closely related seems altogether probable. They are varied forms of the same branch of the family of Essential Fevers, viz., Continued Fever. They have several important features in common. They are not always, as will be presently seen, readily discriminated. Their affiliation and near resemblances furnish just criteria for estimating relationship, without compromising their separate individuality.

Some questions pertaining to the causation of Continued Fever, as yet open for investigation, have an important bearing on this branch of the subject. It is probably the most rational supposition that this, as well as other essential fevers, always involves, in its production, the operation of a specific morbific agency. Now do *Typhus* and *Typhoid* fever require each a distinct special cause, or may the same specific agency produce either disease according to the direction or modification it receives irrespective of the intrinsic character of the cause? Both types may be propagated by contagion. This seems to be conclusively settled. Now is the contagious miasm furnished by either type capable of giving rise to cases of both types, or case only of the same type? Another inquiry grows out of that just propounded, viz., does the occurrence of either type of the fever exempt the individual from a recurrence of both types, or only of the particular type experienced? On the latter point some interesting facts are communicated by Dr. Power,* of Baltimore, tending to show that the exemption afforded by having the disease, only extends to the particular type experienced. The facts are, however, too few to authorize the induction of a general law. Observations may hereafter supply positive answers to these and other questions, the connection of which with the present topic, and, indeed, with the subject of the identity or non-identity of the two forms of fever, must be sufficiently apparent.

It is, also, obvious that in proportion as, by continued researches, our knowledge of the natural history of both types becomes more extensive and complete, it may be expected that the distance between them will be more clearly defined.

In concluding these remarks on the identity or non-identity of *Typhus* and *Typhoid* fever, it may be proper to state that the foregoing views differ somewhat from those which the writer has heretofore entertained, and on several occasions expressed.† The study and thought bestowed upon the subject in connection with the analyses upon which the preceding Reports are based, have led to this result. Without presuming that any importance will be attached to the fact, it is mentioned simply because it affords the opportunity of saying that, whether right or wrong, the conclusions are divested of any bias from preconceived opinions.

DIAGNOSIS.

The subject of the diagnosis relates, *first*, to the determination of the *type*, whether *Typhus* or *Typhoid;* and, *second*, to the discrimination of Continued Fever irrespective of type.

Typhus and Typhoid. The differential diagnosis, it is obvious, involves those distinctive traits of either type which enter into its natural history. In so far as these are developed by the preceding investigations, they have been briefly stated under the head of *Summary of the distinctive symptoms of Typhus and Typhoid.* A repetition in this connection is unnecessary. In order to decide to which of the two types individual cases are to be assigned, it is requisite, of course, that the practitioner shall be conversant with the historical features by which each is distinguished from the other, as well as competent practically to apply this knowledge by means of correct observation and judgment. Repeated and extended analyses, by enlarging, and defining more accurately our acquaintance with the symptoms and laws of each type, will contribute, more and more, to establish the points upon which the diagnosis is to be based. This remark admits of a general application. Just in proportion to the progress made in knowledge of the natural history of any disease will the means of diagnosis be increased; and our knowledge of the natural history of any disease is enlarged in proportion to the importance of the results developed by analytical investigations. In the majority of cases of Continued Fever falling under observation, it is not difficult to determine whether the form is *Typhus* or *Typhoid*. The eruption suffices to mark the distinction, when this criterion is available, with an occasional exception in which the characters are not well defined, or those of both types are more or less intermingled. And in cases in which the eruption is absent, characteristic features will usually be present sufficiently to warrant a decision as to type. This is true as the general rule, but in some instances, it must be admitted, the question as to type is doubtful, and in a few instances the diagnosis may be quite difficult, and possibly impracticable. It may occur to the reader, in this connection, to inquire, why it is, if the type be generally determinable, that in arranging the cases upon which the preceding Reports are based, so many were excluded from the *Typhus* and *Typhoid* groups, and classed under the head of *Doubtful type*. Of the one hundred cases, *eighteen* were assigned to this division. If this be a just expression of the result of the effort to exemplify, in the writer's experience, the feasibility of diagnosis, it certainly conflicts with the tenor of the foregoing remarks. But it is not a fair inference that in so large a proportion of cases the type is indeterminable. Inasmuch as a prominent object was a comparison of the results of the analytical investigations in the two types, the intention was to exclude any case in which there was the least room for question as to which type it belonged. On reviewing the histories of the cases of *Doubtful type* since commencing to write on this topic, it is pretty clear, in the majority of the cases, to which of the two series they belong, and so it was at the time the classification was made, but the evidence was not deemed complete enough to satisfy the rigorous rule adopted, and in order to avoid the possibility of a confusion which might vitiate the results, they were rejected. A few were excluded in consequence of the histories being imperfect, on account of the patients coming under observation late in the disease. A few were so mild as not to present some of the prominent traits of either type. In a very small number of the cases embraced in the *Doubtful* series, were the characters of *Typhus* and *Typhoid*, inclusive of the eruption, so intermingled as to occasion very considerable difficulty in forming an *opinion* on the subject of diagnosis. In fact, this was true of but *two* cases in both collections. In nearly all the cases of *Doubtful type* the eruption was wanting.

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* Bartlett's Treatise on Fever.

† Buffalo Medical Journal.

The question has been raised whether the two types of Continued Fever may not be blended in some cases; in other words, whether a kind of *hybrid* affection is not occasionally observed, formed by an union of the characters of *Typhus* and *Typhoid.* Our acquaintance of the relationship which they sustain toward each other is insufficient to predicate thereon any positive opinion with respect to this point. It is a question which, with our present pathological knowledge, must be settled by facts gathered by observation. The histories, in the preceding collections, having a bearing upon this question, are too few, and the facts not sufficiently explicit, to warrant any conclusions.

Another inquiry suggests itself which relates not only to the diagnosis, but to the identity or non-identity of *Typhus* and *Typhoid* fever, viz., Is it not likely that the natural history of Continued Fever is subject to so great mutations incident to the lapse of years, that a transcript of this history based upon observations collected at any particular period will not answer for all time? Is it not probable that the disease has assumed a diversity of phases within a half century or more? That Continued Fever, as well as other affections, at different periods and places may be characterized by striking diversities, is undoubtedly true. The analyses upon which the preceding Reports are based, embracing collections of cases made, for the most part, in two successive years, developed peculiarities incident to each year. In the first collection *parotitis* occurred in several instances, and, in not a single instance in the second collection. The *Typhoid* cases in the second year were distinguished by a remarkably short duration of the febrile career, and by the frequent occurrence of *relapse of fever*, the latter not occurring in a single instance among the cases first analyzed. These are illustrative of variations that may be expected to occur from year to year. Notwithstanding such variations, it may be that, as respects the greater portion of the important elements of the natural history of the disease, there will be found to be a striking uniformity from year to year, and during a long period of time, as well as in different quarters of the world. It is now more than twenty years since the analytical researches upon the *Typhoid* affection, by Louis, were published. The publication of this remarkable work led to the application of the same method of investigation by Dr. James Jackson, of Boston, to the histories of the cases of Continued Fever recorded at the Massachusetts General Hospital during a period of twelve years. The results of the analysis by Dr. Jackson, were found to correspond, in all material points, with those enunciated by Louis, showing the existence of a fever at Paris and Boston having identical phenomena and laws. Not mentioning other investigations, in a small collection of cases occurring at Buffalo, presenting the external distinguishing traits of *Typhoid* fever, has been found, on analysis, a striking correspondence in results with those disclosed at Paris and Boston; and, again, the following year by the analysis of another small collection, the same results are confirmed. The disease, thus, at different periods, and at places widely separated, maintains a strongly marked individuality. Its eccentricities do not compromise a remarkable consistency of character.

As with *Typhoid*, so with *Typhus*, although the latter has not been studied to the same extent as the former. Shortly after the publication of Louis' work, it was ascertained that fever as it prevailed in the British Islands was not uniformly of the kind described by that distinguished observer. Separating the cases in which the characteristic traits of *Typhoid* were present, from those in which they were absent, the latter were found to exhibit distinctive traits sufficient to warrant their arrangement in a separate class, to which has been restricted the term *Typhus*. Dr. Gerhard, of Philadelphia, was the first to apply, to any considerable extent, the analytical method of determining the natural history of the form of Continued Fever just mentioned. He gives the results of an analysis of a large number of cases occurring at Philadelphia in 1836.*

These results, in so far as the symptomatology of the disease is concerned, appear to be, in the main, reproduced wherever, subsequently, the disease has been studied; and it has been seen that they are exemplified in the casual cases assembled, on two successive years, in the hospital at Buffalo.

Facts, thus, seem to render it probable that, although the lineaments of the two forms of Continued Fever may be liable to variation to a greater or less extent, the fundamental traits which characterize each, and upon which rest their claims to be considered distinct affections, have as much fixedness as belongs to other diseases. Indeed, judging from the data as yet available, both *Typhus* and *Typhoid* fever are less subject to important changes, from time to time, than other forms of febrile disease, for examples Remittent Fever, Rubeola, and, especially, Scarlatina. But with reference to this interesting point of inquiry, multiplied observations and analyses are highly desirable. By this method of appealing to facts, and by this method only, can it be demonstrated, on the one hand, what characters of these, as well as other diseases, are preserved from year to year, and age to age; and, on the other hand, the nature and extent of the mutations incident to time or place.

The propriety of resolving all cases of Continued Fever into two forms,

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*Am. Jour. of Med. Sciences, vols. 19 and 20.

Typhus and *Typhoid*, and the appropriateness of these terms of designation, are points not yet touched upon. It may be a question whether cases in which the distinctive traits of *Typhus* or *Typhoid* are wanting, or at least not prominent, should not be considered to form a separate class. A certain proportion of the cases of Continued Fever which fall under observation, are of the kind referred to, and this would appear to be true of a consecutive series of cases occurring at particular periods and places, as in the instance of epidemics of what has been described by some authors under the name of *inflammatory* fever. It would obviate a difficulty of diagnosis which must to some extent be felt in practice, to include cases in which it is not easy to recognize distinct evidences of either the *Typhus* or *Typhoid* type under a distinct head.

The expression *simple Continued Fever*, which some writers have employed, might embrace such cases. Or, another course may be pursued, viz., to consider all cases not presenting unequivocal marks of *Typhus*, as belonging to a common series, using, instead of the term *Typhoid*, the phrase *Common Continued Fever.* The latter is the more simple arrangement, and would probably answer every practical purpose.

Objections are frequently made to the terms *Typhus* and *Typhoid.* The former, *Typhus*, has long been applied to denote a form of fever characterized by ataxic symptoms, and especially stupor, to which the etymology of the term refers. The significancy of this term is in a measure impaired by the nosological lines which are now considered to bound the division. While it is still true that ataxic symptoms, including somnolency, or stupor, are apt to be prominent, and earlier developed in *Typhus*, it is also true that these symptoms are not invariably present in a notable degree in that type, while they are not infrequently developed in an equal degree in cases of *Typhoid.* The diagnostic criteria, in short, embrace other traits than those pertaining to the nervous system. Still, as most of the cases to which the term *Typhus* has been heretofore applied, would be so considered in the present acceptation of that term, there is a propriety in retaining it.

The term *Typhoid* is more open to criticism, although it is significant of the fact that frequently in cases of the type which it designates are presented prominent symptoms resembling, and indeed, identical with those observed in *Typhus.* But the term is inappropriate, inasmuch as this significancy only applies to a certain proportion of the cases of the class which it is employed to denote. Besides, the term has become incorporated in medical literature, and common parlance, to denote Typhus-like symptoms occurring in various diseases. If all cases of Continued Fever not exhibiting the diagnostic traits of *Typhus*, are to be considered as embraced in a single nosological group, some other designation than *Typhoid* would seem to be desirable, and this term might still be used to distinguish certain cases which affiliate closely with those of the *Typhus* type. The phrase *enteric fever*, proposed by Prof. Wood, is based in the supposition that all cases are complicated with more or less of the characteristic intestinal lesions. This, as has been seen, cannot be considered established. The expression *Common Continued Fever* is perhaps as unobjectionable as any that, in the present state of our knowledge, could be selected.

Discrimination of Continued Fever from other affections. In sections of country in which periodical fevers are more or less prevalent, Remittent and Continued Fevers are to be discriminated from each other. To do this is not always easy, and requires, on the part of the diagnostician, an accurate knowledge of the phenomena distinctive of each disease. It is probable that these affections have been, to a considerable extent, confounded by practitioners. This has arisen, doubtless, in part, from not recognizing the characteristic traits of each, but, in part also from the looseness with which the terms *Typhoid* and *Typhus* have been employed. Cases in which typhus or typhus-like symptoms become developed have been called cases of *Typhus* or *Typhoid* fever without inquiring whether other essential diagnostic criteria were present or not. A *Typhoid condition* is one thing, and *Typhoid fever* another. The first may enter into various diseases. That is to say, the ataxic symptoms which give rise to those external characters of which the term *Typhoid* is significant, such as muttering delirium, coma-vigil, subsultus, prostration, do not exclusively pertain to *Typhoid* fever, and, on the other hand, are not invariably present in cases of *Typhoid fever.* The diagnosis of *Typhoid* fever, in fact, is by no means based solely on the symptoms which it has been, and is still customary to characterize as *Typhoid* symptoms. Hence, the disadvantage of the term *Typhoid* as the title of a particular species of fever. Uncertainty as to the mode in which the term *Typhoid* is applied, has tended, in no small measure, to create distrust of contributions on subjects connected with the disease. Several interesting questions which have occasioned considerable discussion, of late years, remain to be settled by careful and repeated observations made in different portions of the country. One of these relates to the geographical boundaries of *Typhoid* fever — is it affected by climate and topography, and, if so, to what extent, and in what manner? Another is, what are its relations to Remitting fever — do the two fevers prevail together at the same time and place — do they succeed each other — are they convertible the one into the other —

may the phenomena of each be intermingled in variable proportions, the two diseases being blended together? The topics involved in these inquiries are exceedingly interesting and important. It does not fall within the scope of my present design to inquire what reliable facts bearing upon them have been contributed; but it must be admitted that they open a field in which there is abundance of room for investigation.

The differential diagnosis of Remitting and Continued Fever, it is clear, is essentially involved in the collection of observations just stated, and others not less interesting and important, for example questions relating to the management of the two fevers. And the differential diagnosis, it is evident, involves those points of contrast which are developed by comparing the two affections as respects the natural history of each. Here, as in all diseases, our available means of diagnosis are proportionate to the minuteness and extent of our knowledge of the natural history of the diseases to be discriminated from each other; and here, as in all diseases, the natural history is to be based on the results of the analytical investigation of recorded cases. This method of investigation has been, as yet, inadequately applied to the study of Remittent Fever. Small collections of cases have been analyzed by Dr. Stewardson, Dr. Gerhard, and Dr. Stille, of Philadelphia, and Dr. Swett, of New York. But to determine the precise relative positions of the phenomena which enter into the symptomatology of the disease more extensive analyses are requisite. It remains to effect for this disease what the labors of Louis have accomplished for *Typhoid* fever. When this is done, it may be expected that not the least of its advantages will consist in the means of diagnosis being extended and better defined.

Without dwelling on the subject, I will endeavor to give a brief synopsis of the more prominent of the diagnostic traits which, with our present knowledge, appear to be involved in the discrimination of Remittent and Continued Fever. In the great majority of instances in which this discrimination is to be practically made, it will lie between Remitting and *Typhoid* Fever. The following summary, therefore, will embrace the characters distinguishing Remittents from the *Typhoid* type of Continued Fever.

SUMMARY OF CHARACTERS DISTINGUISHING REMITTENT FROM TYPHOID FEVER.

Access oftener abrupt; prodromic symptoms, if present, less prominent, and of short duration. Disease more uniformly ushered in by a *chill;* the latter more pronounced, more apt to be accompanied by *rigor*, and to be longer in duration, in short, more closely resembling the cold stage of an intermittent.

The early stage frequently characterized by *remissions*, consisting in a marked abatement of the febrile movement, recurring with more or less observance of the laws of periodicity observed in intermittents, chills sometimes repeated at the termination of the remissions.

Quiet, muttering delirium, and *coma-vigil*, rarely present, and, when present, occurring later in the career of the disease. The delirium, when present early, generally due to high febrile excitement occurring during the height of the exacerbation. Sopor occasionally observed in the exacerbation, probably due to cerebral congestion. *Deafness* very seldom present. *Subsultus, carphologia*, and *great prostration* less apt to occur.

Nausea and *vomiting* more constant and prominent symptoms, accompanied by tenderness over the epigastrium. Thirst more urgent. Absence of tenderness in iliac regions, and gurgling and meteorism much less frequently developed in a notable degree. Peritonitis and intestinal perforation do not occur, nor hæmorrhage from the bowels. Diarrhœa not occurring as an element of the disease, irrespective of cathartic remedies or other exciting causes. *Sordes* seldom observed.

Cough, with sibilant and sonorous rales, less constant. Pneumonitis less apt to occur as a complication. Epistaxis not an element of the disease. (?)

No eruption of rose spots. Sudamina less frequent in occurrence. Yellowness of conjunctiva and surface of body oftener observed. Eschars more infrequent. Congestive redness not so uniform or marked. (?)

Physiognomy less characteristic. A stupid, besotted expression, or an absence of all expression more rarely observed.

No predilection for autumnal months; more apt to occur during the heat of summer.

Does not evince preference for young subjects.

Not infectious nor contagious.

Prevails only in miasmatic regions, or attacks those who have been exposed to miasmatic influences.

Frequently ends in intermittent fever, and persons having experienced the disease are subject to subsequent attacks of intermittents.

The distinctive traits comprised in the foregoing summary are sufficient to denote a form of fever quite different from either type of Continued Fever. They suffice also for practical diagnosis in the great majority of cases, even although the most striking characteristic of Remittent Fever which suggested the name by which it is distinguished, to wit, the *remissions*, may be absent, or have ceased to recur prior to the patient coming under observation. That *Remittent* and *Typhoid* Fevers have been confounded, more or less, by practitioners, may be owing to various causes. In districts in which periodical fevers are the predominant form of febrile disease, the study of the characteristic phenomena of *Typhoid* fever is apt to be neglected, and this form of fever is accordingly overlooked. Moreover, it remains to be determined whether, and to what extent, the two fevers are capable of being blended, and mutually convertible.

The traits involved in the differential diagnosis, however, will doubtless be more accurately determined, and possibly new points of contrast developed, when the natural history of each disease, but especially of Remittent fever, shall have been perfected by further analytical researches.

Continued Fever is to be distinguished from inflammations, and local affections accompanied by febrile movement. There is greater liability of mistaking Continued Fever for diseases seated in particular organs, than the reverse; but an error of diagnosis, in either way may be committed. So far as my knowledge and experience extend, Continued Fever, not recognized as such, may be considered to be *Encephalitis*, *Pneumonitis*, and *Enteritis.* I have heard of instances in which *Tuberculosis*, with tuberculous fever, were set down as cases of Continued Fever. The three affections just named viz., encephalitis, pneumonitis, and enteritis, may actually be present in connection with Continued Fever, the error then consisting in regarding them as *primary*, when they are *secondary* diseases; or the diagnosis may be predicated on prominent symptoms referable to the head, the chest, or the abdomen, when inflammation affecting either of these anatomical divisions, does not exist even as a complication of the fever.

The discrimination involves several general principles which are applicable alike to each of the affections. *First*, if the disease be Continued Fever, in the majority of cases it will have been preceded by an access of several days' duration. This is a feature somewhat characteristic. *Second*, the evidences of fever will probably have been declared prior to the development of the local affections, or of the prominent symptoms which lead to the supposition of the existence of the local affections. *Third*, the local symptoms referable to the organs supposed to be the seat of disease, and which may actually be affected secondarily, although they may be prominent, are yet disproportionate when compared with the general symptoms — prostration, disturbance of intellect, etc. *Fourth*, symptoms characteristic of fever, and which do not belong to the history of the local affections, may be expected to be present, such as the eruptions, epistaxis, congestive redness, meteorism, abdominal tenderness, etc. *Fifth*, symptoms are absent which it would be expected should be observed if the local affections were present, or present as primitive affections.

Some of the principles in the foregoing list may be available in cases which come under observation after the fever has advanced more or less in its career, and when it is difficult or impossible to obtain an authentic account of the previous history. The practitioner is more liable to be deceived in such cases, than when the disease has been under observation from the beginning. But even with this disadvantage, if conversant with the distinguishing characters of Continued Fever, and practically familiar with the local affections named, the discrimination should not often prove difficult. Without devoting to this branch of the subject extended consideration, I will offer a few remarks on the application of the above principles to each affection separately.

Encephalitis.—Active, persistent delirium, preceded by cephalalgia, in some instances, and, in other instances, a state of profound somnolency, or coma, may lead the practitioner to think that encephalic inflammation is the original disease. The collections of cases upon which were based the preceding reports, contained illustrations of prominent cerebral symptoms in both these forms. Of the cases thus characterized, in which post mortem examinations were made, no evidences of encephalic inflammation were found. The cerebral symptoms here referred to, therefore, however prominent, do not necessarily denote that encephalitis exists even as a complication of the fever. Putting aside the diagnostic evidence to be derived from the development and early stage of the disease, and also the consideration that acute encephalitis, in the adult, except as the result of mechanical injuries, is an exceedingly rare affection in this climate, the histories of each of these cases show, on the one hand, the presence of characters distinctive of *Typhoid* Fever, and, on the other hand, the absence of symptoms distinctive of *Encephalitis.* In the first category are meteorism, tenderness in the iliac regions, diarrhœa, etc. In the second are increased sensibility to light and sounds, corrugation of eyebrows, vomiting, constipation, etc. The former were present when they should not have been, had the disease not been Continued Fever; and the latter were absent when it should have been otherwise had acute encephalitis existed. Here, again, it is seen how diagnosis is based on points of contrast evolved by the study of the natural history of diseases. Some of the more obvious and striking symptoms may be common, in certain cases, to different affections, while the less conspicuous and minor details suffice to mark the distinction, and thus obviate errors which would be inevitable without due attention to the latter. Practical skill in diagnosis, thus, is commensurate, not alone with the tact and sagacity of the practitioner, but with the extent of his acquaintance with the historical features of diseases.

Pneumonitis. It is to be presumed that, in cases in which it is a matter of doubt whether the disease be Continued Fever or pneumonitis, the latter exists as a complication. To decide whether a pneumonitis be a *secondary* or *primary* affection, may sometimes be attended with real difficulty, arising from the fact that when primary it is sometimes associated with some of the more prominent of the symptoms of *Typhoid* or *Typhus* fever, forming what is called *Typhoid Pneumonia.* We may have the delirium, prostration, etc., which constitute the *Typhoid state,* in connection with pneumonitis, occurring irrespective of *Typhus or Typhoid* fever. It is to be remarked, however, that cases of what is called *Typhoid Pneumonia* are, probably, not infrequently cases of *Typhoid* or *Typhus* fever, with pneumonitis as a complication. There is reason to suppose that the two affections have been confounded, to a greater or less extent, owing to the diagnostic lines not having been, until lately, distinctly drawn. If this remark be true, *Typhoid Pneumonia* does not occur so often as would be inferred from past writings.

In the differential diagnosis the early history is especially important, for it probably is rarely the case that pneumonitis, occurring as a complication of Continued Fever, becomes developed from the commencement of the febrile career. If the disease has been observed from the first, therefore, it will be evident that the local affection is consecutive to the fever. Frequently it does not occur until late in the progress of the disease. When this is the case, the inflammation is of a low grade, and would be likely to escape, not only detection, but suspicion, if physical exploration were not employed. The physical signs, moreover, are less developed than when the affection is primary, or, at least, this remark is applicable to the special auscultatory sign — the crepitant rale.

To determine the relation between the gravity of the general symptoms and the local affection, is an important point in the diagnosis, inasmuch as by means of physical exploration the extent of the pneumonitis may be accurately gauged. A striking disproportion between the general condition and the local inflammation should lead to the presumption that the latter is a complication in cases which come under observation after the febrile career has advanced more or less, and we have not the advantage of the previous history. But, in addition to the evidence derived from these two sources, we are to look for special symptoms characteristic of Continued Fever, and which do not enter into the natural history of pneumonitis, such as an eruption, the abdominal symptoms, epistaxis, etc. A sufficient number of the latter, it may be expected, will be present to determine the diagnosis, even when it is required to be made late in the disease, without our being able to ascertain whether, or not, the fever had precedence of the pneumonitis, and without reference to a disparity between the local and the general symptoms.

Enteritis. The prominence of diarrhœa and other abdominal symptoms leads to the error of supposing the disease is enteritis. Cases in which this error is committed are of the *Typhoid* type, and follicular enteritis, the characteristic complication of this type, is, of course, present. The diarrhœa and other abdominal symptoms may have been prominent from the commencement of the disease, this being true of some cases of *Typhoid* fever. The diagnostic principle of the fever taking precedence of the local affection, would then fail in its application.

The disproportion between the local and general symptoms is a point here specially applicable.

The presence of the *Typhoid condition* would not be looked for in connection with primary enteritis.

The characteristic traits of *Typhoid* fever, viz., eruption, meteorism, epistaxis, etc., traits not belonging to the natural history of ordinary enteritis, possess not less significance than when the differential diagnosis involved the two affections previously considered.

The error of mistaking Continued Fever for local affections, is oftener committed when children are the subjects of the disease. The diagnosis of infantile Continued Fever is less easy than when patients are adults. It is sometimes difficult, in children, to appreciate some of the distinctive symptoms, such as the state of the mind, the degree of abdominal tenderness, etc. The rule of the proportion between local and general symptoms is not the same in children as in adults. The constitutional disturbance is greater from a less amount of local disease in the former. Moreover, some of the distinctive traits of Continued Fever appear to be oftener wanting. This is probably true with regard to the eruption. There is reason to suppose that cases of Continued Fever occurring in childhood are not unfrequently regarded as cases of encephalitis and enteritis. The more frequent occurrence of both these affections in early life conduces to these errors of diagnosis. This is a branch of the subject possessing not a little practical importance, since the influence of an incorrect discrimination on the treatment can hardly fail to be pernicious. I shall content myself, however, with this brief allusion to it. An analytical investigation of a collection of cases of infantile Continued Fever is much to be desired, with a view, among other useful ends, to determine in what manner, and to what extent, the disease is modified by circumstances incident to childhood.

THE

MANAGEMENT OF CONTINUED FEVER.

So many difficulties stand in the way of determining, by means of numerical analyses, the precise relative value of different measures in the treatment of diseases, that it is questionable if, by this method of study, our knowledge of therapeutics will be much advanced. The efficacy of different remedial agencies is to be estimated, *first*, by the appreciable results which follow directly their employment, and, *second*, by an apparent influence, either immediate, or more or less remote, on the severity, duration, and termination of diseases. It is, obviously, in the latter point of view, only, that statistical results can be, to any considerable extent, available. Is the ratio of mortality affected by this or that treatment? Is the severity, or the duration of the disease greater, or less, when such and such measures are employed? These are the questions to be proposed in the prosecution of this branch of analytical investigation. The point of departure for these inquiries, it would seem, should be a knowledge of the severity, duration, and ratio of mortality pertaining to diseases uninfluenced by remedial measures. What would be the results, in these respects, of the analysis of a series of cases which were permitted to run their course without any interference from medical art? Such results would, doubtless, prove valuable contributions to medical science; but our opportunities for obtaining them, for reasons sufficiently apparent, are limited. We can only consult the interests of medical science, when the means for that end do not conflict with those humane objects of our art, which are paramount in importance. And, since we are not justified in withholding therapeutical measures which we have good grounds for thinking may exert more or less efficiency, we are, in a great measure, debarred from studying the laws of disease as respects the points mentioned, prior to instituting comparisons of results developed by the analyses of cases treated after different methods. This is one difficulty. But, were it surmountable, another, and even greater difficulty springs from the fact, that the same diseases exhibit striking diversities, at different times and places, in severity, duration, and mortality, irrespective of measures of treatment. This is not less true of Continued Fever than of any other disease. If, therefore, we had the advantage of the results of the analysis of a large collection of cases in which the disease was allowed to run its course without therapeutical interference, the laws deduced therefrom could not be taken as a fixed standard by which to measure, by comparison, the relative advantages or disadvantages of different plans of management. And, hence, it follows, that severity, duration, and fatality are not reliable as criteria for testing the remedial character of therapeutical measures. The disease may be severe, prolonged, and unusually fatal, under the most judicious management, and it may be mild, of a short career, in a large proportion of cases ending in recovery, when the treatment in nowise contributed thereto.

Were both these difficulties overcome, others would arise. The management of a disease is more or less complex. It comprises various elements. To isolate these elements severally, and assign to each its proper relative importance, is difficult and often impracticable. Statistical comparisons, to be complete, must embrace analyses of successive collections of cases that have been appropriated, respectively, to each important element which enters into the management, whether medicinal or hygienic. But the same objections are applicable to the collection of observations of this kind, as to the withholding of all remedies in order to witness the progress of disease uninfluenced by art. Aside from the intrinsic difficulties of the undertaking, moral considerations conflict with it.

Finally, assuming that difficulties did not exist, and numerical analyses were brought to bear, successfully, upon this branch of investigation, the utmost that could be attained would be to demonstrate that, in the treatment of a disease, a certain method, or plan, is preferable in the larger proportion of cases. Therapeutical principles, in other words, would be based on mean results, or averages. Now, it does not follow that measures which are most appropriate and useful in a series of cases considered collectively, are the most appropriate and useful in all the individual cases of the series. A method of treatment may be the best, for example, in seventy-five of one hundred cases, and by no means the best in the remaining twenty-five per cent. Nay, it is only a seeming paradox to assert that a method of treatment, which, if pursued indiscriminately, would be instrumental in saving more lives than any other method pursued in like manner, might yet, in some instances, directly conduce to a fatal result.

I would not be understood to deny that numerical results are of importance in the study of diseases with reference to their management. Notwithstanding the difficulties that have been mentioned, enumerations and comparisons with a view to determine the value of remedial agencies, are by no means wholly impracticable, nor altogether fruitless. Statistics showing the rate of mortality, for example, under different methods of treatment, are to be considered in estimating the relative merits of these methods. They have a certain positive value; and when this is not the case, they may possess importance in a negative sense. To illustrate the force of the latter remark, suppose, in a series of cases of Continued Fever, in which the patients were kept on gum-water for diet, the ratio of mortality was found to be not greater than in other collections in which more nutritious aliment was considered to form an important element of the management, it would certainly be a fair presumption that the latter element might be omitted with safety as respects the issue of the disease. To attempt to define the limitations of the application of the numerical method of study to therapeutics, would be to enter on a wide field of discussion entirely foreign to my present design. The foregoing remarks are merely preliminary to saying that, in writing a brief essay on the *management of Continued Fever*, I shall not enunciate conclusions based, exclusively, or mainly, on numerical observations. Aside from other considerations, the number of recorded histories that I have collected is by far too few to furnish data for comparing the results of different methods of treatment. Nor was this an object of inquiry while the cases were in progress. The treatment pursued in all cases was that which accorded, at the time, with the opinions and judgment of the writer, without any reference to future analyses.

What are the general principles that should govern the management of Continued Fever, which are most consistent with our present knowledge of the disease, and the results of experience? In expressing views suggested by this inquiry, I shall refer to facts contained in my recorded observations so far as they appear to have any important bearing on the subject, without descending to tedious details.

The general principles of management are applicable alike to the *Typhus*, and *Typhoid* forms of Continued Fever. It will suffice to notice incidentally any considerations pertaining specially to either type, without treating of the subject in its relations to the two types under distinct heads.

The management of Continued Fever may be considered to embrace, *first*, abortive methods, or measures designed to arrest the progress of the disease, or abridge its duration; *second*, the treatment of the disease irrespective of abortive measures, and without reference to co-existing or secondary affections; *third*, the remedies required by its complications.

MEASURES DESIGNED TO ARREST THE PROGRESS OF THE DISEASE, OR ABRIDGE ITS DURATION.

It has long been a mooted question, whether Continued Fever, when fully formed, can be broken up by any plan of medical treatment. Various measures for that end have, from time to time, been proposed, which, after a short trial, have ceased to be employed. This fact suffices to show that no reliable means for effecting the object have, as yet, been discovered; for, if any of the measures proposed were uniformly, or in a large proportion of cases, successful, their efficacy would hardly fail to prevent their falling into disuse. The question must still be considered an open one. An opinion on the subject is, of course, but conjectural. Until our ability to control the course of the disease is demonstrated, we can only judge as to the probability or possibility of the attainment, by analogy and speculative reasoning. Both favor the expectation that a specific controlling remedy may, at some future period, be discovered. Such a remedy has been found in the case of Intermittent and Remittent Fever, by means of which, these forms of febrile disease are rendered amenable to art. Nor, admitting that all essential Fevers involve, as their primary fundamental pathological element humoral changes due to the action of special poisons, is it too much to hope that the time may come when these changes shall have been successfully investigated, their character and relations to the poisonous agents well understood, and science arrive deductively at the knowledge of opposing or counteracting remedies. Bloodletting, purging with calomel and other cathartics, emetics, vapor baths, and cold affusions are among the measures that, in past time, have had, to a greater or less extent, a transient celebrity in arresting or abridging Continued Fever. At first view, it would seem that it must be an easy task to determine, positively, respecting the efficiency of any plan of treatment instituted for these ends. It is, however, not so easy, but that measures may acquire and retain, for a time, a fictitious importance. This arises from the difficulty of demonstrating whether the febrile career has been arrested or not, owing to the fact that the symptoms of the access, not unfrequently, are observed without being followed by the formation and career of fever; and, again, we meet with instances in which febrile movement is developed, and, continuing for two or three days, ceases from its own limitations, constituting what is known as *febricula* or *ephemeral fever*. Now, we are never able to say, positively, when remedies appear to prevent the development of fever, or arrest its progress, that the same results would not have occurred spontaneously, had no remedies been employed. This being the case, it is easy to conceive that, with the influence of enthusiasm, and the bias of preconception, the efficacy of a novel method of treatment may, at first, appear to be supported by evidence which longer and more rigorous experience disproves.

Proposed methods of treating Continued Fever, with a view to rendering it abortive, of a more recent date than those which have been mentioned, are not wanting. The most notable that have fallen under my notice are, 1st, the administration of quinia in large doses. This has been advocated particularly by Prof. Thomas D. Mitchell, formerly connected with the Transylvania University, Lexington, Ky. 2d, opium given in large doses is affirmed to be, in a large proportion of cases, successful, by Dr. A. G. Henry, of Pekin, Ill., and others. 3d, the wet sheet, as employed by the hydropathists, with a view to fomentation and diaphoresis. I have made these methods the subjects of a few observations, which are by no means adequate as tests of their respective merits, and are, perhaps, hardly worth reporting. Few as they are, however, I will give a brief account of them, as a small contribution toward a collection of data which shall suffice to settle the importance to be attached to each of these methods. Such a collection, so far as I know, is not, as yet the property of science.

In *two* cases, in the first collection, quinia was prescribed with a view to an abortive effect. In both cases, the fever was fully formed before the remedy was given. In *one* case, *twenty-four* grains of quinia were prescribed in twenty-four hours, on the first day, and twenty grains on each of the two succeeding days. It occasioned characteristic buzzing in the ears, but exerted, no appreciable effect on the progress of the disease. The duration of the fever in this case, was eighteen days. In the other case, the dose given was three grains every six hours, which was continued for six or seven days. No appreciable effect was observed in this case, the duration being fifteen days. Both cases were of the *Typhoid* type.

In another case, on the first day of admission into hospital, five grains of quinia were given, and repeated twice, under the impression that the disease was Remittent Fever. No appreciable effect followed in this case.

I have repeatedly prescribed quinia in doses of two grains every four or six hours from the time patients came under treatment, and continued the use of the remedy in this way for several days, without observing any apparent influence on the disease.

In *five* cases, of which I have presented notes, *opium* or *morphia* was given in pretty large doses, in order to try the effect of this as an abortive remedy. The histories of these cases, in so far as concerns the point under consideration, are briefly as follows:

Case 1. Martin Lyons, Irish, laborer, aged 33, admitted into hospital Dec. 13, 1849, on the *sixth* day after taking to the bed. The record of symptoms on the day of his admission was not made. *Four grains of opium were given at night.* At the morning visit on the day following, he was sleeping profoundly and heavily. Respiration labored, and inspiration somewhat spasmodic. He was readily roused, and replied to questions promptly and coherently. Reported feeling finely, and said he had passed a very comfortable night. Perspired copiously during the night, and slept soundly, without muttering. Surface, at time of examination, covered with a cold, clammy perspiration. Pulse 130, extremely small and feeble. Singultus.

15th. Reports comfortable. Respiration during night, labored, and inspiration somewhat spasmodic. Had epistaxis last night. Skin warm and mellow. Pulse 108, more developed. Rhythm of respiration now normal. Has cough and rusty expectoration, with physical signs of pneumonitis affecting right lung inferiorly. Skin and conjunctiva present moderate yellowness.

16th. Manifested delirium during night by incoherent talking. Appears now rational. Reports quite comfortable. Cough and expectoration continue. Epistaxis yesterday twice. Respirations 28; rhythm normal. Yellowness of skin and conjunctiva diminished. Pulse 88, tolerably developed.

17th. Symptoms not materially changed. Pulse 84.

19th. Symptoms continue unchanged. No delirium. Pulse 96.

22d. Reports "finely." Cough somewhat troublesome. No febrile movement. Appetite improving.

Parotitis commenced on the 30th, and proceeded to suppuration. On the 19th of January, he was able to sit up. Discharge from parotid much diminished. Appetite good. This is the date of the last record of the case.

Remarks. The remedy was given, in this case after the fever had continued for several days. It was followed by cerebral symptoms of a grave character, as denoted by the respiration, great acceleration and feebleness of the pulse, and copious perspiration. On the next day but one after the opium was administered, the course of the fever appeared to be suspended. He was laboring under pneumonitis, which, perhaps, was developed prior to the administration of the opium. This complication, and parotitis, which subsequently occurred, retarded the convalescence. There seems to be some ground for suspecting that the remedy exerted an influence over the duration of the febrile career in this case.

Case 2. Katharine Riley, Irish, domestic, aged 17, admitted Dec. 18, 1849, on the *third* day after taking to the bed. On the 19th, she presented a dull aspect. Appeared drowsy. Face congested; eyes slightly suffused; skin hot and dry. Moderate tympanites, and tenderness in iliac regions. Pulse 120. Slight mental aberration at night. *Four grains of opium were administered.*

20th. Reports not so well. Says she passed a restless night. Complains of pain "all over." Face deeply congested. Aspect more dull. Somnolent, but easily roused. Pulse 116. Skin dry and warm. Abdominal tenderness continues.

The career of the fever persisted without any material change, and three days after the above date, parotitis, on both sides, commenced, and proceeded to suppuration.

Jan. 9th, she was able to sit up, and rapidly convalesced.

Remarks. The result of the remedy, in this instance, appeared to be negative.

Case 3d. Michael Donnehea, aged 7, admitted P. M., Dec. 21, 1849, on the *third* day after taking to the bed.

22d. Complains of cephalalgia and debility, anorexia, thirst. Slight congestion of the face and upper extremities. Tongue thickly coated and inclined to dryness. Two or three dejections during the night. Pulse 112, small and feeble. Abdomen full, but not resonant. Moderate tenderness in right iliac region. A sparse eruption over abdomen and chest, with typhoid characters. Has had no medicine since his admission, or previously. *Opium in dose of a grain and a half was prescribed.*

23d. Reports quite well. Perspired profusely last evening. Tongue clean. No febrile movement. No dejection. No medicine prescribed.

Jan. 3d, it is noted that the patient began to sit up after date of the last record, and appeared convalescent. Day before yesterday, 1 P. M., Jan. 1st, he took to the bed, and last night exhibited delirium by incoherent talking. He complains of headache. Tongue moist and furred. Bowels moved last night. Vomited last night. Ate porridge and toast for breakfast this morning. Skin perspiring. Pulse 108. No medicine, but restrict the patient to farinacious diet.

No record of the case is made after this date. The slight relapse was possibly occasioned by over indulgence in eating.

Remarks. Unless the administration of the opium was a coincidence with the spontaneous cessation of the febrile career, it would seem to have been successful in arresting, at once, the progress of the disease. It will be observed that the grain and a half of opium constituted the sole medicinal treatment of the case.

Case 4. Thomas Toole, Irish, boatman, aged 25, admitted P. M., Oct. 14th, 1850, having been ill *five* days, but it is not noted how long he had kept his bed. 15th, he presented the following symptoms:—Considerable congestive redness of face and upper extremities; cephalalgia; thirst; some cough. Skin hot. Pulse accelerated.

16th. Cephalalgia. Congestive redness continues. Conjunctiva injected. Skin warm and dry. No dejection for three days. Pulse 104. Respirations 24. Slight tympanites.

Sulphate of Morphia, gr. ss., at morning, to be repeated at night.

17th. Reports better. Says he slept well. Was talkative during night. No pain in head, or elsewhere. Aspect improved. Conjunctiva injected. Congestive redness of surface continues. Skin warm and moist. Pulse 104, tolerably developed. No cough.

Sulphate of Morphia, gr. 1-4, *every four hours.*

18th. Manifested considerable delirium during night, by incoherent talking, and attempting to get out of bed. Pulse 116. Respirations 20, etc.

The febrile career persisted in this case; pneumonitis became developed, and death occurred on the fourteenth day after admission.

Remarks. Some amelioration in the symptoms was apparent on the day following that on which the grain of morphia was given, but the progress of the disease was unaffected by the remedy.

Case 5. Nora Kinne, Irish, aged 24, domestic, admitted on the evening of Nov. 5, 1850. Had been ill since the 1st, and had kept the bed since the 3d.

On the 6th, she presented the following symptoms:—Conjunctiva slightly injected. Moderate congestive redness of the face, and slight on upper extremities. Occasional cough. Respirations 25. Skin hot and dry. Pulse 116, moderately developed. Tongue dry, reddened and coated. Moderate meteorism. Slight tenderness in right iliac region. *Opium, grs. iv, given in the forenoon.*

At 5, P. M., sleeping soundly. Skin warm and moist. Pulse 112. Respirations 20.

7th. Reports better. Says she slept well during night. Face and hands slightly congested. Skin warm and moist. Tongue moist and thinly coated, reddened at top. Respirations 20. Pulse 78. Tympanites lessened. No dejection. No tenderness. Anorexia, thirst. *Morphia, gr. ss., at bed time.*

7th. Reports better. Says she slept well. No dejection. Urinates freely. Face and hands slightly congested. Skin warm and mellow. Tongue moist and coated. Slight tympanites. Slight tenderness in right iliac region. No eruption. Pulse 88. Respirations 20.

9th. No material change in symptoms.

10th. Several dejections during night. Skin hot and dry. Tongue dry and reddened. Pulse 92. Anorexia; thirst. Respirations 20. No tympanites. Slight tenderness in right iliac region.

11th. Reports still better. Says she slept well. Skin warm and mellow. Tongue moist and furred. Pulse 84. Anorexia. No thirst. Sat up a little.

12th. Symptoms denote improvement. Some appetite.

13th. Improving.

She continued to improve until the 18th, when relapse of fever commenced. On the 19th, the pulse was 108 at A. M., and at P. M., 120. On the 20th, it was 128 at A. M., and at P. M., 144. On the 21st, the symptoms exhibited decided improvement, the pulse having fallen to 90. From that date, she again convalesced, and left hospital on the 2d December.

Remarks. There is room for the conjecture that the morphia exerted an influence on the progress of the fever in this case. The striking improvement in the symptoms on the day succeeding that on which the morphia was given, favors this supposition. This improvement was especially manifested in the pulse. Convalescence could be pronounced in three or four days afterward. Relapse of fever occurred in several of the cases observed through the winter of 1850–51, as will be perceived on reference to the second report.

The facts contained in the foregoing cases do not, of course, authorize any positive conclusions. So far as they go, however, they furnish encouragement for the supposition that opium, in large doses, in some cases, does possess more or less power to affect the progress of Continued Fever. A series of recorded cases, showing the results of this plan of treatment, is certainly to be desired. It is to be remarked that, in each of the foregoing cases, the career of the fever had continued for several days before the treatment was pursued. It is, perhaps, reasonable to suppose that the chances for the success of any method of abortive treatment would be greater the earlier it is resorted to. Nor was the opiate plan of treatment carried to the full extent recommended by Dr. Henry and others. The minimum dose proposed with a view to abortive effects was employed; and the plan was not carried out by repeating the measure once, twice, or more, in the same case.

I have resorted to the wet sheet in *five* instances, of which I will give a succinct account.

Case 1. An account of this case I must give from recollection. The patient was a private inmate of the hospital, in the summer of 1850, out of the period of my service, and the details of the history were not noted. He presented sufficient evidences of Continued Fever, having been ill several days, but had not taken to the bed prior to his admission. On the morning of the day following that on which he was admitted, the wet sheet was applied, and the body then wrapped in blankets, after the plan of *packing* practiced by the hydropathists. These were allowed to remain for four hours. Copious diaphoresis followed. The skin became cool, and he passed a comfortable night. During the previous night he had exhibited delirium, and at the morning examination, before the wet sheet was applied, there existed high febrile movement, with somnolency, etc. On the next day, he was free from fever; skin cool, pulse not accelerated, mind perfectly clear, and, in short, the febrile career seemed at once and completely arrested. I was delighted with the apparent success of the measure. In the afternoon I received a message that the patient thought to be doing so well in the morning was dying. I found him in apoplectic coma, and death occurred the succeeding night. I ascertained that, feeling so well in the forenoon, he had essayed to sit up; and had actually dressed himself, and sat up for a time. He had returned to bed, and fallen into a state of unconsciousness before an unfavorable change in the symptoms attracted attention. The apoplectic coma and fatal termination, it is not improbable, were due to the imprudent act just stated. Although they could not, with propriety, be charged upon the remedy, the unfortunate issue of the case deterred me for some time from again resorting to it, notwithstanding the immediate apparent effect was striking and satisfactory.

Case 2. James Cavernaugh, aged 15, Irish, admitted Dec. 2d, 1850, having been attacked the previous day, with pain in head and limbs, chills, anorexia, thirst, etc. The symptoms, on his admission, were as follows:—Complains of debility. Lies quietly in bed. Aspect bright. Mind clear. Anorexia. Tongue moist and thinly coated. Not much thirst. Vomited to-day. Tenderness over right iliac region and epigastrium. No tympanites. Pulse accelerated. Skin hot and dry. *Pulv. Doveri, gr. iv, every four hours.*

3d. Complains of severe pain in head. Says he did not sleep during night. Face and hands considerably congested. Conjunctiva slightly injected. Skin hot and dry. Pulse 112, well developed. Anorexia. Tongue moist and coated. Considerable thirst. No dejection. Tenderness over epigastrium and right iliac region. *S. morphia, gr.* 1-4, *at bed time.*

4th. Reports feeling very badly. Complains of pain in head. Says he did not sleep during night. Aspect dull. Face and upper extremities present considerable congestive redness. Skin hot and dry. Pulse 108. Tongue moist and coated. Anorexia. Thirst. Vomited last evening. Slight tenderness over abdomen generally. Moderate meteorism. No dejection since the commencement of illness. Says he has no cough. Slight epistaxis this morning.

The wet sheet was applied for two hours, after which, morphia, gr. 1—4, and brandy, ℥ss., were administered.

At evening, he reported better than at morning. Pain in head continues, but is lessened. Skin warm and moist. Tongue coated, dry in the center, and moist at sides. Anorexia. Not much thirst. No nausea. Moderate meteorism continues. One dejection. Pulse 116.

5th. Reports better. Aspect improved. Skin warm and dry. Tongue coated and inclined to dryness. Anorexia. Some thirsty. No nausea. Some tenderness in epigastrium and right iliac region. Slight meteorism. No eruption. No dejection. Slight vomiting. Pulse 104.

6th. Reports much better. Aspect much improved. Says he slept well. Face much less congested. Skin warm and mellow. Pulse 84. Tongue moist and coated. Anorexia. No thirst. No nausea.

7th. Symptoms improving. Pulse 76.

8th. Improving. Tongue moist and clean, except at base. Some appetite. Pulse 84.

Convalescence continued until the 18th, when relapse of fever occurred, and continued for three or four days, when he again convalesced without any untoward symptoms.

Remarks. Distinct amelioration of the symptoms followed the application of the wet sheet, which was resorted to on the *third* day, and convalescence could be pronounced on the *eighth* day after taking to the bed. It may be reasonably surmised that the remedy affected the progress of the disease in this instance.

Case 3. Patrick Cavernaugh, aged 9, brother of James, (case 2,) admitted Nov. 27th, 1850. He complained of debility at time of admission, but was dressed, and kept about until Dec. 2d, when he took to the bed. On the 5th of December, he presented the following symptoms:—Cephalalgia. Face flushed, and upper extremities slightly congested. Skin hot and dry. Pulse 116. Tongue dry and coated. Anorexia. Considerable thirst. No dejection for two or three days. Moderate meteorism. Tenderness in right iliac region. No eruption. Slight cough. *The wet sheet was applied at 11 A. M., and continued two hours.*

7 P. M. Reports better. Less pain in head. Face flushed, and perspiring. Skin warm and moist. Tongue moist and coated. No thirst. Moderate meteorism. No dejection. Pulse 124.

A small dose of morphia was administered after the wet sheet was removed, and brandy ℥ss given twice within four hours.

5th. Reports better. Was talkative during night, and frequently got out of bed. Replies now to questions promptly and rationally. Aspect improved. Face slightly flushed. Skin warm and mellow. Tongue moist and thinly coated. Has some appetite. No thirst. Slight meteorism. No dejection. Vomited slightly this A. M. Pulse 88. Slight cough. No eruption.

6th. Reports free from pain, but very weak. Attempted, frequently, to get out of bed during early part of night.

Directions had been given to administer morphia according to circumstances, and, by inadvertency, a quarter of a grain was repeated four times (i. e. one grain,) within the space of three hours. At the morning examination, he appeared partially narcotized, being roused with some difficulty. He slept profoundly the latter part of night. Face somewhat congested, and upper extremities slightly. Skin warm and mellow. Tongue dry and thinly coated. No appetite. No thirst. Occasional nausea. No dejection for five or six days. Moderate meteorism. Slight abdominal tenderness. No eruption. Pulse 96.

6th. Reports comfortable. Says he slept well. Slight congestion of face and upper extremities. Skin warm and dry. Tongue rather dry and thinly coated. Some appetite. Some thirst. One dejection. No meteorism. Pulse 84. Disposed to somnolency.

8th. Aspect much improved. Tongue moist and nearly clean. One dejection, *moulded, and perfectly healthy in appearance.* Pulse 96. Skin warm and mellow. No delirium.

This patient convalesced until the 15th, when relapse of fever occurred, the duration of which is not recorded; but it continued a few days only.

Remarks. The history of this case shows a striking amelioration of the symptoms after the application of the wet sheet, but not an immediate arrest of the progress of the disease. The large quantity of morphia given on the second night after the wet sheet was applied, is a point of interest. It is difficult, of course, to say what influence these measures exerted, singly or combined, upon the duration of the disease; but it is a fair presumption, that the short career may have been due to one or both of them.

Case 4. Margaret O'Connor, aged 14, Irish, domestic, admitted March 12th, 1851. She had kept the bed for two days prior to her admission. The day but one after her entrance, i. e. March 14, she presented the following symptoms:—Cephalalgia. Cheeks flushed. Anorexia. Thirst. Tongue thinly coated, and dry in center. No nausea nor vomiting. Slight cough. Pulse 104. Skin warm and dry. No eruption. Moderate meteorism. No dejection. No tenderness.

Wet sheet was applied.

15th. Reports much better. Aspect much improved. The record states as follows:—"She had the wet sheet at 7 P. M. Prior to its being applied, the skin was hot and dry. She said she was comfortable during its application. The surface became cool and moist, and so continued. She slept well. Thirst ceased. Skin is now cool and moist. Pulse 72. Tongue moist and thinly coated. Says she has some appetite, and has taken some toast and tea with relish. Respiration normal. No cough."

It was directed to repeat the wet sheet if febrile movement returned. It was not called for. She convalesced from the date of the preceding record, no medicines being administered until the 17th, when quinia, grs. ii, three times daily, was directed. No relapse of fever occurred in this case.

Remarks. With the *post hoc* reasoning, the remedy, in this instance, was directly and completely successful.

Case 5. This was a case of fever occurring, in private practice, in a child four years of age. The case is interesting from the intensity of the febrile movement, and from the fact that the wet sheet constituted the chief treatment.

The patient came under my care March 10th, A. M. The day previous, she fell asleep after dinner, and on awakening, complained of feeling very ill, and took to the bed. She had not appeared well for several days previously, but, on the morning of the day of the attack, was as bright as usual. During the night after the attack, she vomited several times; the surface was hot; she was very restless, and talked incoherently. On the morning of the 10th, just before I saw her, she had a slight convulsive tremor, without entire loss of consciousness, lasting but for a moment or two. The pulse was greatly accelerated, and the skin very hot.

I directed simply the ext. Hyos., in solution, grs. ii, every four hours.

At noon, high febrile movement continued; skin intensely hot; pulse ranging from 170 to 180; disposed to somnolency; incoherency. The bowels had moved the day previous. Under the impression that the disease would prove to be scarlatina, the chlorinated soda in solution was prescribed, but occasioning vomiting, it was omitted after the second dose.

At evening, the symptoms presenting no change, *the wet sheet was applied.* The immediate effect was soothing, and the pulse fell to 160. Late at night, the rhythm of the respiration became somewhat affected, the inspiration being shortened and quickened, and the expiration prolonged. Dr. Winne visited in consultation; and it was agreed to envelop the body in a sheet wetted with mustard water, and, afterward, to repeat the wet sheet as before, ice being applied to the head. The sheet wetted with mustard water was applied for an hour, and followed by the simple wet sheet, which was continued for about four hours. The patient was soothed, but the pulse remained the same. No remedies were given, except the hyosciamus.

11th. At 6 A. M., patient had slept quietly for several hours. Respirations 40, rhythm normal. Pulse 160. Less delirium. Asked frequently for cold water.

The ext. Hyos. was continued, and the face, neck and arms frequently sponged with cool water. At noon, a solution of sulphate of morphia and tartrate of antimony and potassa, of each gr. 1-32, every three hours, was substituted for the hyosciamus. No vomiting since the chlorinated soda was suspended. No dejection until an enema was administered in the afternoon, which was followed by a tolerably free evacuation. Abdomen not meteorized nor tender. Pulse 160.

12th. Passed a comfortable night. Slept quietly much of the time. Pulse, at A. M., 150. Skin less hot, mellow. No vomiting. No dejection. Slight meteorism. No food had been given since the attack prior to this morning, when she took a little milk and essence of beef. She relished the latter, and it was continued through the day. She had a little wine and wine whey. At evening, she took a little bread and milk which she had asked for. Pulse, at evening, 140. Skin mellow. Respirations 30. No dejection. Slight epistaxis. Slight mental aberration.

The treatment, on this day, consisted of the morphia and antimony, of each gr. 1-32, every four hours.

14th. Night before last was passed quite comfortably. Yesterday morning, aspect improved. Took a little egg-nog and a little bread and milk with relish. Pulse ranged from 130 to 140. Bowels moved slightly by enema. No medicine until evening, when the ext. hyos. gr. i ss, every four hours, was prescribed. To-day, aspect still more improved. Pulse 130, and at noon, 120. Syrup of rheubarb and magnesia was prescribed in repeated doses, until it produced a laxative operation.

From this date the little patient rapidly convalesced without farther treatment. On the 17th, medical attendance was discontinued, and she has remained perfectly well up to the present time, Jan. 1852.

It will be understood that the foregoing report of cases in which quinia, opium, and the wet sheet were employed, contains the sum of my observations, up to this time, relating to these methods. The cases are not selected for illustration, but are all that I have collected bearing on the present subject. As already remarked, they are too few for purposes of induction. So far as they go, however, they afford evidence, in the first place, of the safety of making trial of these methods. This is a point of primary importance. With the present uncertainty attending the employment of any measures to cut short, or abridge the duration of Continued Fever, we should be hardly justified in resorting to those which, if not successful, would be likely to impair the chances of passing through the disease with safety. In this respect the three methods of treatment just mentioned compare favorably with others that have formerly been in repute, viz: copious bloodletting, emetics, and cathartics.

But the facts contained in the histories of the cases in which opium and the wet sheet were employed, although insufficient to authorize inductions respecting the positive influences due to them, yet tend to support the presumption that they do possess more or less power to ameliorate the symptoms, and to affect both the duration and severity of the disease. At all events, they are of a character to render it interesting to prosecute farther observations, in order to collect a larger series of data for investigation.

It is by no means improbable that various methods of treatment may be found to exert more or less control over the intensity and persistence of the morbid conditions upon which Continued Fever depends. This is the fact with respect to periodical fevers. In the latter form of fever, arsenic, strychnia, prussiate of iron, salacine, etc. are found to have each a specific influence, the quinia being superior to any. So, in Continued Fever, it should be, not only an object of inquiry to ascertain a single plan of abortive treatment which may be, to a greater or less extent, successful, but to discover different methods; and, finally, by comparisons, to ascertain their relative value, and the circumstances upon which the efficiency of each depends. Should Science, at length, succeed in acquiring a special remedy, adequate to the objects of art in the management of this disease, as quinia is in the treatment of periodical fevers, it will certainly be not more extraordinary than that the latter should have been discovered; nor, prior to this discovery, were there stronger reasons for anticipating it than now exist with reference to prospective success in seeking for the means of controlling Continued Fever.

A single remark suggests itself, in conclusion, respecting measures that have heretofore been considered successful in arresting or abridging the career of Continued Fever. Allusion has been made to the factitious importtance attached, for a transient period, to different methods of treatment for these ends. It is to be considered, on the other hand, that the demonstration of this fact with regard to any measure naturally leads to a disparagement of the value which it may actually possess. If a remedy fails to fulfill the sanguine expectations which had been raised, it becomes as much undervalued as it had been over estimated, and, hence, falls into unmerited neglect. Possibly this remark may be applicable to some of the methods of treatment formerly supposed to be successful in controlling the course of Continued Fever. The extent however to which some of these methods have been employed forbids such a supposition. For examples, bloodletting, emetics, and cathartics, it is probable, have been in vogue sufficiently to establish their inefficacy as abortive remedies. It may, perhaps, be doubted whether this is true of cold affusions as recommended by Dr. Currie, about a half century ago. The striking success which appeared to attend this measure, and which gave it, for a short time, such celebrity, it would seem, could hardly have rested on a basis wholly suppositious. May not disappointment at not finding it so uniformly or completely successful as had been anticipated, have caused its value to be unduly depreciated, and too soon abandoned? Having no facts to contribute bearing on this question, I shall content myself with merely propounding it.

TREATMENT IRRESPECTIVE OF ABORTIVE MEASURES, AND WITHOUT REFERENCE TO CO-EXISTING OR SECONDARY AFFECTIONS.

What are the leading principles that should govern the management of Continued Fever, exclusive of measures designed to arrest its career or abridge its duration, and aside from remedies addressed to local affections, with which the disease may become complicated? Several considerations may be mentioned which have an important bearing on this inquiry.

First. The disease, if not arrested, or abridged, by therapeutical interference, has its intrinsic limitations. It runs a certain course, ending in recovery, after the lapse of one, two, or three weeks, provided the issue be not fatal.

Second. The intimate pathological conditions upon which the disease is dependent, or, in other words, its proximate cause, in the present state of science, cannot be explained. The nature of the special agents inducing the disease is unknown, and, consequently, their mode of action within the organism, as well as the immediate changes produced thereby, are not understood. We have not, therefore, the point of departure from which to advance deductively toward a rational plan of cure.

Third. In the majority of instances, the tendency of the disease is to end favorably. If we study the histories of a series of fatal cases, we find that the unfavorable issue is generally owing to causes not belonging intrinsically to the disease — for examples, various complications like pneumonitis; or what may be distinguished as accidents, like hæmorrhage, intestinal perforation, apoplectic coma; or external circumstances, such as the absence of hygienic advantages; or diminished power of resistance from enfeebled health, etc., etc. All these are not, properly, elements of the disease, some being incidental to it, and others wholly adventitious. Divested of every thing collateral, or superadded, affecting its progress in an unfavorable manner, there is reason to believe that the termination in recovery might almost be considered to be a law of the disease.

Now, from these considerations, it appears to be a legitimate deduction that the management of Continued Fever *per se*, under the qualifications embraced in this division of the subject, does not claim efficient medicinal interference. This conclusion accords with the views entertained by many of the most judicious practitioners and the soundest writers of the present time. Apart from means instituted to cut short the disease, and to prevent or relieve complications, the plan of treatment most consistent with what knowledge we at present possess, is the *expectant*, as it is called. The mere fact of the existence of Continued Fever does not involve any special therapeutical indications. Cases may occur in which little or no active interference is called for. It is probable that, of a collection of cases permitted to run their course, under favorable hygienic conditions, without medicinal treatment, a good proportion would end in recovery. This remark is not based altogether on conjecture. For example, Hildebrand says of Typhus: "The experience of all ages proves that, like all other contagious fevers, it is frequently cured of itself, that is, by the mere action of the vital powers, unassisted by any of the resources of our art. The simple state of the disease is, in fact, always dissipated in this manner; and it would be a lamentable circumstance, especially for the poor, if this assertion were not correct." The same author, after citing his own case in which, after an emetic and bleeding, he took nothing but lemonade and barley water during the whole course of the disease, continues: "I have repeatedly seen patients who were affected with a simple ordinary typhus, get perfectly well by taking nothing but lemonade." He adds, "For this mode of treatment I am indebted to the views of a great physician, the Baron De Stork, who has treated the same disease successfully by the simple employment of wine whey." In several of the cases which I have observed, the medicinal treatment has been virtually nugatory, consisting only of slightly palliative remedies, or placebos. As an instance, in one of the cases contained in the first collection, the patient, who had been under homœopathic management for the first ten days, and then abandoned by the attending practitioner as a hopeless case, my treatment, aside from diet, and other measures of hygiene, consisted solely of the sulphate of quinia, gr. 1, every four hours, the career of the disease running to twenty-eight days, and then ending favorably. This was a case in private practice, and the chief reason for prescribing the small doses of quinia was, that I might not, in the event of an unfavorable issue, be exposed to the charge of having given no remedies!

That Continued Fever may often do well without medicinal interference, is a fact important to be borne in mind; but it does by no means follow that the rule of management of the disease is to be based thereon. In saying that the treatment should be *expectant*, it is not intended to assert that the practitioner is to be merely a spectator of the phenomena of the disease, waiting for convalescence without any effort to render therapeutical aid.

The point to be enforced in view of the considerations that have been presented is, that the presence of the disease does not, as a matter of course, furnish the occasion for active remedies. We are not to resort to efficient medication simply because a patient is affected with Continued Fever, nor are perturbatory or powerful measures always required. On the other hand, it may be that little or no medicinal treatment is called for. The therapeutical indications, in other words, are not indissolubly associated with the existence of fever, but are derived from the various circumstances, incidental and accidental, which may be connected with the disease in individual cases. To watch, in every direction, for the development of these indications, to appreciate their character and importance, and to meet them, as they arise, by appropriate measures, are, in general terms, the objects of the *expectant* method of management.

Let us now proceed to inquire respecting some of the particular indications for treatment during the progress of Continued Fever. They may be divided into *special* and *general*. The *special* indications will relate, for the most part, to the symptoms and events, respectively, which enter into the natural history of the disease. The most convenient arrangement will be to notice them under the same anatomical divisions employed in the analyses upon which the preceding Reports were based. Following this plan, the indications pertaining to the *nervous system* are first in order. The symptoms which claim attention with reference to treatment under this head are, *cephalalgia*, *somnolency*, *insomnia*, and *delirium*.

The pain in the head which accompanies the access and early part of the febrile career, is sometimes acute, and may be the chief source of suffering. It is to be borne in mind that, in a greater or less degree, it is an element of the disease, and that, after a few days, it usually ceases to be the subject of complaint. It does not necessarily denote inflammation, or even a tendency thereto, although it may be intense. A different opinion was held by practitioners heretofore, and even now obtains to a considerable extent. In connection with delirium it has been supposed to denote encephalitis, or a liability to this complication, which, in fact, occurs as rarely as it was formerly regarded frequent. The treatment, then, which this symptom may call for, is not to relieve or avert inflammation, as was laid down, for example, in the treatise by Dr. Southward Smith, an able work that did much toward giving direction to the practical notions of physicians in this country, which were formed twenty years ago. The author just named advocated prompt and copious bloodletting for that end. It is questionable how far the cephalalgia is due to active congestion, or any disorder of the circulation. The propriety of bloodletting, theoretically, is involved in this question. The power of this remedy to affect pain or other cerebral symptoms must be mainly by diminishing the quantity of blood determined to the brain, directly, by the amount abstracted from the mass, or, indirectly, by lessening the force and rapidity of the circulation. The circumstances which indicate the remedy, therefore, are those showing the dependence of the symptoms which we wish to relieve upon repletion of the vessels of the encephalon, or upon conditions of the vascular system which depletion will be likely to remove. The subject of bloodletting, in general, in Continued Fever, will be more properly noticed presently, in another connection. Of the efficacy of this remedy in relieving intense cephalalgia, I cannot speak from results witnessed in cases the histories of which I have preserved. I have resorted to it for this or any other purpose in two only of the one hundred analyzed; but in a large proportion of the cases collected, pain in the head had ceased to be a prominent symptom before the patients came under my care.* I have the same confession to make respecting topical depletion by cupping or leeches. Evaporating lotions applied to the forehead, and over the whole head, afford comfort; and in order to facilitate their application, as well as to promote, in itself, coolness of the surface, *cutting the hair close to the scalp*, whenever circumstances render it proper, is a measure of some consequence. The latter is a standing direction for all fever patients admitted into hospital during my term of service. The *ice cap*, in some cases in which the cephalalgia was intense, I have found useful. Cold affusions, limited to the head, pouring water for several minutes from some height from a pitcher or jug, the head being held over a basin, is an appropriate means of procuring the benefits of refrigeration. I cannot speak of its advantages from trial, never having employed it. It is said to be strikingly efficient, and with regard to its immediate effects an error of observation would not be very likely to occur. An *opiate*, in tolerably large doses, for example a quarter of a grain of morphia, has seemed to me to be serviceable in relieving this symptom, when not intense, and unaccompanied by evidences of marked determination of blood to the head. I have never observed any unpleasant effects to follow the use of this remedy in the early period of febrile career when cephalalgia is present.

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* In a few of the cases bloodletting had been practiced before the patients came under my observation. This will account for an apparent discrepancy between this statement and some facts mentioned in the preceding Reports.

This symptom by no means gives rise to a special indication for treatment in all cases. If moderate or slight in degree, with the prospect that it will gradually abate as the disease progresses, and in a few days cease, minor palliative remedies will be sufficient.

Somnolency, in other words a semi-conscious condition from which the patient is readily, but only momentarily roused, need not deter us from prescribing opiate or anodyne remedies, but, on the contrary, they appear to produce a good effect by substituting for this condition more complete and refreshing sleep. The results of my analyses show that the state of somnolency, which is somewhat characteristic of Continued Fever, more especially the *Typhus* type, does not denote a tendency to stupor or coma which would contra indicate narcotic medicines. The latter symptoms, which denote great danger, are of infrequent occurrence, and belong properly among the events complicating the disease.

Vigilance, or insomnia, is a symptom claiming attention in the management. Is it not probable that the enfeebled condition of the brain inducing the delirium and mental hebetude incident to the progress of Continued Fever may be due, in some measure, to the deficiency of sleep? It is to be borne in mind that *somnolency* is not sleep, and, hence, that patients may be in a dozing state the greater part of the time, and still experience the evils of insomnia. To endeavor to procure sleep is an important indication, and for this end opiates seem to me to be valuable remedies throughout the disease. Opium, in substance or tincture, Dover's powder, or morphia may be prescribed. I have been accustomed to employ the last article mentioned oftener than the others. In a large proportion of the cases upon which my second Report was based, generally in doses of a quarter of a grain every four or six hours, it was given during the greater part of the febrile career. In several cases this constituted the chief, and in some instances almost the sole treatment. It has never occasioned any appreciable ill effects; and with reference to this and other indications, I am disposed to think that an anodyne influence maintained by some form of opiate is of considerable utility in the management of Continued Fever.

Delirium, if slight, or even moderate, does not furnish special therapeutical indications. It is an element of the disease, and, if it does not exceed the degree in which it is present in the larger proportion of cases, is not of much importance. When it is prominent as a symptom, and especially when it is predominant, or active, it, of course, claims attention. Opiates, in decided doses will be found useful. I have in several instances observed, after complete sleep effected by anodyne remedies, the mind become more clear, and if delirium recurred, it was lessened in degree. But, so far as my experience goes, the remedy upon which most reliance is to be placed for restraining the delirium of Continued Fever, is the *Tartrate of Antimony and Potassa*, given in connection with anodynes. It is seldom that this remedy will fail to palliate this symptom, and generally the effect is striking. Small doses usually suffice. My course is, to direct a *sixteenth* or *eighth* of a grain to be given hourly, or half hourly, until the patient becomes quiet, unless distinct nausea or vomiting occurs, when it is to be suspended. The desired quietude will frequently be obtained without its being carried to an extent to disturb the stomach. Anodynes may at the same time be given with intervals of four or six hours as when the object is to procure sleep. The manifestations of delirium calling for treatment take place especially at night, and, hence, the tartar emetic is seldom required during the day time, but it may be repeated nightly if required.

So satisfactory has been the employment of antimony with reference to this symptom, that, excepting in those instances in which the delirium was remarkably active and persistent, a more efficient remedy seems to me hardly attainable, or even desirable. In the instances in which delirium is a predominant feature, I have no remedies to suggest more likely to be beneficial than opiates and antimony. There is reason to think that when the disease is thus characterized, it will almost inevitably prove fatal in spite of any measures of treatment.

The indications pertaining to the *Digestive System* will relate, mainly, to *nausea and vomiting, diarrhœa, hæmorrhage from the bowels, constipation, tympanites, and abdominal tenderness.*

Nausea and vomiting, seldom present in a degree to require special treatment, very rarely occur after the access, or early part of the febrile career. When they claim any attention, restrictions as respects the quantity and quality of what is ingested will usually suffice; and, if further measures are necessary, those are appropriate which are employed to relieve gastric irritation developed irrespective of fever, or in connection with other affections. These measures are a sinapism or blister to epigastrum; morphia; kreosote; hydrocyanic acid, etc.

Diarrhœa, is a symptom embraced among the distinctive traits of the *Typhoid* type, which will sometimes call for special remedies. So far as my experience goes, it is seldom difficult to regulate the evacuations by simple measures. An anodyne and astringent enema, repeated according to circumstances, usually suffices; and if morphia, or some form of opiate, is administered with reference to other objects, agreeably to the plan I have pursued in the majority of cases, it is seldom that the diarrhœa will require additional treatment. The presence of diarrhœa furnishes an indication, in addition to those already noticed, for the employment of some form of opiate. I have had no experience with the nitrate of silver which has been recommended to be given by the mouth, and by injection, to relieve the diarrhœa occurring in *Typhoid* fever. The spirits of turpentine also, which has been advised for the same end, I have prescribed too little to form an opinion of its efficacy from the results of my own observations. Merely looseness of the evacuations, without undue frequency, does not call for special treatment.

In the two instances among the one hundred cases upon which the preceding Reports were based, characterized by the occurrence of *hæmorrhage from the bowels*, the administration, by the mouth, of opium and the acetate of lead in one case, and, by enema, of the tincture of opium and tannic acid in the other case, proved at once successful. This symptom, which is somewhat distinctive of the *Typhoid* type is probably due to ulceration of Peyer's patches, conjoined with a condition of the blood itself, favoring its transudation. The importance of pursuing measures to arrest the hæmorrhage as speedily as possible, cannot be doubted. This is apparent from the prostration attending its occurrence. Having once occurred in the progress of a case, the impropriety of administering cathartics, or laxatives subsequently is obvious.

Constipation not infrequently exists in Continued Fever, oftener in the *Typhus*, than in the *Typhoid* type, but occasionally in the latter; that is to say, the bowels will remain quiescent for several successive days if cathartics or laxatives are not given, and, especially if opiates enter into the management.

The question here suggests itself, what are the indications in the management of the disease which pertain to cathartics? Most writers on this subject enjoin the employment of remedies of this class sufficiently to procure one or more dejections daily; and the majority of practitioners, probably, make this an object of treatment. My own observations lead me to hold a different view. The results of the investigation of the histories that I have collected show, *first*, that diarrhœa frequently follows the operation of a cathartic; *second*, that the proportion of cases characterized by diarrhœa is greatest among those in which cathartics were employed; *third*, in one case, hæmorrhage from the bowels followed the operation of doses of castor oil, occurring only in this connection, and no cathartics being given in that case with these exceptions; and, *fourth*, no appreciable evils resulted from omitting all remedies of this class in a large proportion of the cases, a dejection not occurring, in several instances, for periods varying from three to eight days.

These facts appear, to my mind, to render more than doubtful the propriety of resorting to cathartics in Continued Fever, save for some special objects.

Looking at the subject rationally, it is to be considered, *first*, that cathartics are not indicated, more than other remedies, by the mere fact of fever being present. We have no adequate evidence that patients pass through the disease more safely and pleasantly, other things being equal, when cathartics enter into the management, than when they do not. *Second*, it is a principle of general application in therapeutics, not to be lost sight of here, more than in other affections, that remedies of more or less potency, if not indicated, will be likely to prove hurtful. If not efficient for good, they will probably be productive of harm in proportion to their activity. They cannot be expected to be neutral in their consequences. *Third*, it is not difficult to conceive, from the *modus operandi* of cathartic remedies, how they may prove injurious. Their local action on the alimentary canal involves more or less irritation, and this, when the follicular patches are diseased, ulcerated, in the *Typhoid* type, (a condition not incompatible with constipation,) cannot but be prejudicial. Under these circumstances the only way in which they can be considered appropriate in their local effects is to suppose that by effecting the discharge of the morbid contents of the intestinal canal, they remove causes of irritation, which, by remaining, would do greater harm than is occasioned by the action of the cathartic. Admitting that the direct effects of the latter are bad, it may be said that it is indirectly useful by causing the discharge of what would occasion effects much worse. This is doubtless the reasoning often adopted; but the premises are assumed, not proved. Indeed, in so far as the facts presented in the preceding Reports furnish evidence relating to the matter, it is adverse to the hypothesis just stated. Other reasons which may be assigned such as, 'to correct the secretions,' 'to excite the action of the liver,' etc., are too gratuitously speculative to deserve attention, more particularly so long as the results of experience appear to be adverse to the utility of cathartics.

The remote, or general effects of this class of remedies is to diminish the vital forces, to conduce to prostration. In other words they are debilitating in their tendency, and, hence, it is reasonable to suppose that they may be productive of harm rather than good. Although this phraseology is somewhat indefinite, owing to the want of precision in our knowledge of the remote effects of cathartics, as well as various other remedies, on the organism, it conveys ideas which are practically appreciable, and with which all practitioners are sufficiently familiar. For the reasons, therefore, which I have thus endeavored briefly to set forth, I think purgatives are not useful in the management of Continued Fever except there arise some special indications for their use. Constipation alone may furnish an indication. If the bowels do not move spontaneously after several days, even if no evils are apparent, it may be the part of prudence to effect a movement. But for this, so far as my experience goes, active cathartics are not requisite. Remedies distinguished as *laxatives* will suffice, and even these, simple injections will usually render unnecessary. The latter are always to be preferred when practicable or adequate. If remedies are given by the mouth, the mildest, and most grateful are preferable, such as Seidlitz powders, Congress-water, Magnesia, etc., provided there are no special reasons for moving the bowels except to obviate costiveness.

By omitting cathartic or laxative measures, unless they appear to be specially called for, the evacuations which take place spontaneously will sometimes preserve an appearance of health, a fact which perhaps will hardly seem credible to those who are accustomed to move the bowels by medicinal means daily, or every other day throughout the progress of the disease. This fact is noted in the histories of several of the cases which I have observed.

Tympanites or *meteorism*, may furnish an indication for cathartics. This symptom is a source of distress, and, by impeding respiration, etc., may add to the danger of a fatal issue. It therefore claims attention. Enemas are sometimes useful; but if these are ineffectual, a cathartic should be tried, more especially if the bowels are constipated. Mechanical compression by means of a bandage, and friction with stimulating embrocations appear to be serviceable. Cloths dipped in heated spirits of turpentine have seemed to be a useful application. I have given, in several instances, powdered charcoal with a view to its property of absorbing gases, and I have imagined that it produced some effect in that way.

Abdominal tenderness, is peculiar to *Typhoid* cases, and is seldom so great as to occasion suffering except upon pressure, or movements of the body. Fomentations, or a light cataplasm, would be appropriate, but the cases must be rare in which this symptom requires special treatment, excluding, for the present, those in which peritonitis exists as a complication.

It is rarely that important indications appertain to symptoms referable to the *Pulmonary System*, excluding, for the present, cases in which the disease becomes complicated with pneumonitis. More or less cough belongs to the natural history of Continued Fever, but it is seldom sufficiently prominent, or troublesome, to need remedies. When it is otherwise, provided opiates do not enter into the management, small doses of morphia dissolved in mucilage, or syrup, are appropriate.

Epistaxis, which also belongs to the natural history of the disease, in the great majority of instances is slight, not requiring to be restrained, but perhaps being a salutary fluxion. Occasionally, however, it is copious, and may proceed to an alarming degree. The usual methods of arresting hæmorrhage from the nostrils, are then to be resorted to, viz: the application of cold, and, in some cases, plugging the anterior and posterior nares. Of the one hundred cases upon which the preceding Reports were based, in but one case was the loss of blood so great as to occasion apprehensions of danger. The hæmorrhage was arrested in this case without resorting to plugging.

The indications pertaining to the *circulation* relate chiefly to *bloodletting*. Respecting bloodletting in Continued Fever, my recorded observations are, with a very few exceptions, confined to cases in the treatment of which it did not enter. That I have omitted to avail myself of facilities to study, to some extent, the effects of this therapeutical measure, has been not wholly owing to a reluctance to employ a remedy of doubtful applicability, but, in some measure, to the fact that a large proportion of the cases, the histories of which I have preserved, did not come under observation until the disease had advanced so far that bloodletting would have been deemed inadmissible by those who advocate its propriety.

If Continued Fever offers indications for bloodletting, it is evident that they are now of a character different from those which have heretofore led to its employment in this disease. The objects for which this measure was formerly practiced, (aside from the effort to cut short the disease,) were to relieve and to prevent local inflammations. Its supposed utility was based either on the dogma that fever was always symptomatic of local inflammation somewhere, after the doctrine of Broussais, or on the belief that inflammations of internal organs were very liable to occur as complications, and that, in the latter cases, they constitute the chief source of danger. The doctrine held by Dr. Southward Smith, for example, was, that the only element of fever over which art can exert any control, is the tendency to local inflammations, and hence, bleeding was regarded by him as (to use a common metaphor) the sheet anchor of the treatment. These pathological notions are now well nigh obsolete. Few will be found, at the present time, to contend that there is no such disease as essential fever; and it may be considered equally settled that local inflammatory complications, calling for active treatment, are of infrequent occurrence. These facts by no means suffice to disprove the utility of bloodletting, but they show, assuming its usefulness, that the reasons why it is so, are other than those which have heretofore been considered satisfactory.

In seeking to form a just estimate of the value of this, as of every other remedy, the question of course arises, what are the accumulated results of experience? This question properly precedes an inquiry concerning the rational indications which the remedy is to fulfill. The difficulties, already alluded to, of testing by experimental observations, different methods of treatment, are applicable to bloodletting, as well as other therapeutical measures. It cannot be said that the positive influence exerted by the employment of this remedy on the average fatality, or duration of Continued Fever has been settled by numerical facts. It may, indeed, be doubted if statistics have demonstrated, or are capable of demonstrating that it possesses any power to shorten the career of the disease, or to lessen the liability to death, all other things being equal. It must, however, be admitted that experience renders highly probable, if it has not established an important negative conclusion, viz, that bloodletting does by no means always increase the duration, or fatality of Continued Fever. This is a legitimate deduction from the employment of the remedy in successive series of cases, in which the average of fatality and duration is small or moderate. Not to mention other statistics bearing on this point, those contained in the treatise by Dr. Southward Smith, before referred to, suffice for this deduction. These statistics are based on cases, in a large proportion of which bloodletting was practiced, it being regarded as the most important therapeutical measure in the management of the disease, and the results, during several years, do not exhibit a large proportion of deaths.

Now, while a low rate of mortality, on the one hand, and, on the other hand, a high rate, may not afford much evidence either for, or against the effect of bloodletting, owing to the great variations of the disease at different times and places, in the relative fatality, and for other reasons, a small proportion of deaths in a series of cases into the treatment of which the measure entered, certainly affords a strong presumption that the effect was not in a great degree prejudicial.

Were we to inquire concerning the views which have been entertained by practical men, and professedly based on impressions derived from individual experience, we should find discrepancy of opinion. It would require considerable research to determine on which side recorded testimony of this kind preponderates. Unanimity of opinion by no means obtains among practitioners of the present time. Confidence in the remedy and its employment have, doubtless, declined within the few past years, but the subject is an open one for discussion and investigation. Common consent, or the united voice of the profession, does not fix a precise estimate of the value of the remedy, more than do the rigorous analyses of facts.

With our present knowledge, it would appear to be as unphilosophical and irrational to commit the judgment in behalf of repudiation of bloodletting in all cases of Continued Fever, as to advocate its employment in every case. The conclusion most consistent with facts, and which best reconciles the conflicting results of experience, is, that the remedy may, or may not be appropriate — that it is useful in some cases, and probably hurtful in other cases. Its propriety and usefulness, it is reasonable to suppose, depend not only on the circumstances appertaining to individual cases, but on characters of the disease peculiar to certain times and places; and, hence, observations showing at one time, or place, its utility, and at another time or place its evils, may be equally correct. The importance of studying the traits of Continued Fever, as of various diseases, of different seasons and situations, in order to adapt the treatment to the varying characters which it may assume, applies to other therapeutical measures, as well as the particular remedy under consideration. The value of this precept, emphatically enunciated by Sydenham, the experience of practical observers since the day of that illustrious physician has abundantly confirmed.

In view of the general conclusion, with respect to bloodletting, just stated, it remains to inquire what are the indications derived from symptoms which should lead us to resort to the remedy in individual cases of Continued Fever? Let it be borne in mind that we are not to bleed simply because the patient has Continued Fever; we do not bleed for the disease *per se.* We do not bleed to extinguish the disease, or because it is proved that by this remedy its duration is shortened. Nor do we bleed because Continued Fever necessarily involves local inflammation, or tends thereto. What do we immediately effect by bloodletting? We lessen the mass of blood, and thereby diminish the motive power carrying on the circulation. Now the quantity of blood may be in morbid excess in fever, and the momentum may be unduly exaggerated. Here, then, are objects to be fulfilled by detracting blood, viz: to reduce the excess in quantity of the circulating fluid, and to abate the excess of energy in the action of the forces carrying on the circulation. If this be the correct rationale of the supposed beneficial operation of bloodletting, the special indications, it is plain, relate to the condition of the vascular system, as respects repletion, and of the circulation as respects power. Fullness of the vessels, a pulse denoting, not *activity,* but *power*, i. e. in volume well developed, and resisting compression — these symptoms, associated with the other elements of a high grade of febrile movement, are those by which the employment of this measure is to be governed.

To settle upon the conditions under which bloodletting may be practiced, is one point, but another point, manifestly of importance, is, to determine the extent to which it may be carried with prudence and advantage. The limitations of the remedy, in the abstract, are defined with more difficulty than the indications for its employment. In resorting to this, as to any potent therepeutical measure, the harm that it is capable of doing, is to be taken into account, as well as the good that it is desired to effect by it. The chief point of consideration in this aspect is, that since we do not expect to arrest or abridge the continuance of the disease, it would be obviously injudicious to bleed to an extent to compromise the ability of the patient to hold out through the febrile career. It were better to forego the relief it may afford to some of the contingent symptoms, than to incur that hazard. To adapt the remedy to the circumstances of particular cases, keeping within proper conservative bounds, is a matter that cannot be embraced in routine rules, but must be left wholly to the judgment and tact of the practitioner.

To conclude these few desultory hints on the subject of bloodletting in Continued Fever, I should say, judging from my own observations, that the indications for this remedy are rarely present. I can readily understand, however, that in a series of cases of a different description it may be otherwise.

wise. A large proportion of the cases I have observed were among newly arrived immigrants, reduced by the deprivations incident to a tedious voyage across the Atlantic, and suffering from the depressing moral influences of sickness in a hospital in a strange land. Moreover, the greater number, as already remarked, were admitted after more or less continuance of the disease, and the rational indications for bleeding are very rarely present save at an early period. Patients attacked in vigorous health, and especially if laboring under an overplus of blood, and an unduly energetic circulation, other things being equal, are those who would be expected to present indications for bloodletting. A larger proportion of this class of patients would be likely to be found in a series of cases in a healthy rural district, than among the poor population of a city. Hence, I have had occasion to remark that practitioners in the country are apt to be stronger advocates of bloodletting than those residing in cities.

Finally, the indications for bloodletting are less frequently present in the *Typhus*, than in the *Typhoid* type. This accords with the distinctive characters of the former. In the *Typhus* form of the disease the vital powers are more prostrated; the circulation seldom exhibits morbid increase of power, and the importance of conservative precautions is greater than in *Typhoid*.

The special indications pertaining to the *skin*, relate, first, to *increased heat, and dryness*. These symptoms are usually present, more or less, in Continued Fever. They denote a condition of the skin unfavorable for the exercise of its functions, and it is reasonable to suppose that thus, indirectly, they may prejudice the welfare of the patient, aside from compromising his comfort. The direct effect of an increased disengagement of caloric, moreover, it is not improbable, may contribute to some of the evils of the febrile state.

The most effective, and, in fact, the only refrigerating measures that possess much potency, are external applications, and these are *cold water* and *cool air*. Ablutions with cold water are usually very grateful to the sensations of patients affected with fever, and abate, frequently in a striking manner, the increased heat and dryness. The simplicity of the remedy causes it to be too lightly esteemed by attendants, and sometimes, perhaps, by physicians. It is really an important part of the treatment of a large proportion of fever cases. The face, body, and extremities, may be sponged, in succession, several times during the day, or as often as the heat and dryness return. A faithful, judicious nurse may occupy a considerable portion of the time with these ablutions, to the advantage of the patient. Should *cold* water occasion uncomfortable sensations (which will rarely, if ever, be the case) tepid, or even warm water will secure, by evaporation, part of the refrigerating effect. The evaporation will be more rapid if spirit be added to the water. Cologne, or other perfumed spirits may be employed for this purpose, as a matter of taste, or elegance. The ablutions (with water) should extend to the mouth and teeth. The appearance, comfort, and, in some degree, the welfare of the patient are promoted by removing the deposits on the teeth and lips (sordes), and cleansing the tongue and mouth, so far as practicable, from the vitiated secretions.

Cold water taken into the stomach exerts a refrigerating effect on the skin, and the system at large. Patients should be allowed to drink freely, the only restraint required being not to take at a single draught sufficient to distend the stomach and occasion distress or vomiting. The refrigerating effect of cool air is important. This is one of the useful ends of free ventilation. To secure this end the patient should be lightly covered, and ventilation beneath the bed clothes attended to.

The skin being endowed with important excretory functions, the supposition that a morbid material may be eliminated through this channel, provided the humoral pathology of fever be adopted, is certainly not irrational. The notion that fevers sometimes arrive at a favorable termination by means of a critical cutaneous excretion, has for a very long period been entertained, and is still in vogue with the profession, and especially with the public. Upon this idea is based the indication for measures designed to induce diaphoresis in Continued Fever. Is this a valid indication? So far as the results developed by my analyses bear upon this question, they do not furnish evidence for the affirmative. These results show that increased perspiration, or sweating, although occasionally coincident with a favorable change, is oftener not immediately followed by convalescence, or a distinct amelioration of symptoms. This being the case, the chances are unfavorable to an expectation of benefit from diaphoresis, were it practicable to induce it at will, unless it be more beneficial when it results from remedial measures than when it occurs spontaneously, which is not a very probable supposition. The most rational inference from the facts just mentioned is, that when sweating directly precedes or concurs with convalescence, or marked improvement, it denotes either a coincidence of phenomena having no connection of cause and effect, or that the sweating is one of the results of the favorable changes in the progress of the disease due to other causes. In the latter view the occurrence of sweating is a sign or token, instead of a means, but since it occurs as often without, as with an amelioration of symptoms, it has little or no significance in this aspect, unless, at the same time, other symptoms denote improvement, or herald convalescence. Reasoning in this way there seems little encouragement to endeavor to excite the excretory function of the skin in the management of Continued Fever. Experience, however, may lead to a different conclusion, but I have no facts to offer bearing on this point, except the few observations already presented on the use of the wet sheet, the effect of which is mainly to promote diaphoresis.

The *Genito Urinary System* cannot be said, with our present knowledge, to furnish special indications for treatment, excepting attention to the bladder to obviate over accumulation of urine. The latter point is not to be overlooked in the management of the disease. The blunted perceptions of the patient may prevent, not only due attention on his part to the evacuation of the bladder, but the consciousness of suffering from distension. Hence, it is important to ascertain daily the quantity of urine passed, and to explore the hypogastric region whenever there is reason to suspect retention. The kidneys, as well as the skin, form an important excretory outlet, which may possibly be concerned in the elimination of matter upon which the continuance of the disease more or less depends. The secretion of urine in Continued Fever is generally scanty, and some observers have noticed, shortly before, or at the time of convalescence, the quantity to become more abundant, and to contain an increased proportion of lithic acid, or the lithates. It does not, however, appear to have occurred to practitioners to endeavor to effect, by the use of diuretics, ends similar to those which are intended to be fulfilled by diaphoresis. All that is to be said on this point must, of course, be wholly conjecture. A collection of facts showing the results of experience is desirable, and the study of the changes which the urine undergoes in Continued Fever would perhaps tend to encourage the trial of remedies designed to affect the quantity and composition of this secretion.

The indications which I shall distinguish as *general*, either relate to the management of the disease without exclusive reference to any particular class of symptoms, or are deduced from the ensemble of symptoms. The *general indications* embrace, *first, sanitary conditions.* The hygienic treatment of Continued Fever is of prime importance. If compelled to elect between it and the employment of medicinal measures, in the majority of cases it would probably be the better policy to relinquish the latter. Remedies, be they ever so efficient and judicious, cannot compensate for the absence of favorable sanitary conditions. This follows as an inference from considerations already presented. Inasmuch as we do not claim to exercise any direct control, by means of medical art, over the morbid processes constituting the febrile state, and, consequently, do not address our remedies to the disease *per se*, the reliance for recovery must be mainly upon the self-adjusting power of the organism — a truth applicable to other affections than Continued Fever. It could hardly be otherwise, than that circumstances most conducive to the welfare of the economy in a state of health, in other words sanitary conditions, are of the first importance with reference to restoration.

The more important points belonging to the hygienic management pertain to temperature, ventilation, cleanliness, and attention to the various wants of the patient. Sufficient space to receive an abundance of wholesome air for respiration, etc., is a sanitary condition second to none other. In private practice, whenever practicable, a spacious apartment is to be selected. Frequently, through ignorance on this subject, patients are found occupying bedrooms too contracted to permit a proper supply of pure atmosphere. In hospitals the proportion of the area of the wards to the number of inmates should not fall below the limits which health requires. At least five hundred cubic feet should be allowed for each patient. These points, which are, of course, of more or less importance in the management of all diseases, claim as much attention in cases of fever as of any other affection.

The sick apartment, or ward, is to be kept at a comfortable temperature, care being especially taken to guard against an excess of heat.

Free ventilation is highly important. Adequate provisions for this end, especially in hospitals, demand attention. But, in addition to these, the doors and windows should be thrown open, in suitable weather, several times daily, to secure a more complete renewal of the atmosphere.

Cleanliness requires ablutions of the body, and frequent changes of the bed clothes and body linen. Whenever circumstances permit, it is an excellent plan to have two beds provided, and to transfer the patient daily from the one to the other. The change is in this way more complete, and effected with the least inconvenience, fatigue, and risk.

Attention to the wants, even where they are not expressed, is requisite. The condition of the mind is such that it becomes necessary to take pains to ascertain necessities, and sometimes to judge of their existence without reference to information given by the patient. Drink, for example, is to be given at the discretion of the attendant without reference to any spontaneous expression of thirst, or, sometimes, without regard to the response to the inquiry whether it be desired or not. Efforts at appropriate times to evacuate the bladder and bowels, are to be suggested and encouraged, etc.

The co-operation of an intelligent, judicious nurse, is in no disease more indispensable to successful management than in Continued Fever. This is the more essential in proportion to the peculiar degree of importance belonging to the measures which, of necessity, must be left in some measure to their discretion as well as fidelity; and, in many cases of Continued Fever, upon measures of that class, viz., hygienic regulations, diet, etc., the success of treatment mainly depends. Not a few patients with this disease are lost through the incompetency, carelessness, or perverseness of those upon whom the physician is obliged to rely for carrying out the plan of management which he directs.

The *second* of the *general indications* is to *sustain the powers of the system through the febrile career.* This language is somewhat indefinite, owing to want of precision in our knowledge of the intimate nature of the forces by which the organism resists, and recovers from disease. Its practical significance is, however, sufficiently plain. In importance, sustaining measures rank next to those belonging to hygiene. The disease has its intrinsic limitations. It runs a circumscribed career; and the great object of management, in most cases, is to assist in bringing its course to a favorable termination. The self-adjusting, restorative energies of the system, accomplish the work. To economize, sustain, and develop these energies, placing the patient under circumstances most favorable for their operation, is the chief duty of the physician.

Continued Fever may end fatally, not from the occurrence of lesions incompatible with recovery, but simply because the powers of the system fail before the disease reaches the termination of its career. If the patient can be sustained for a sufficient period, he is safe. It is not uncommon for active agencies to be required to obviate an immediate and strong *tendency to death* — the issue appears to hang upon a thread — yet, the sustaining measures prove efficient, the crisis is passed, and in a short time the patient passes from a state involving the greatest possible danger into convalescence. These facts exemplify the importance of the general indication under consideration.

The sustaining measures comprise *stimulants*, *tonic remedies*, and *nutriment*. These, almost invariably, are indicated in combination. I will, however, offer a few remarks on each under a distinct head.

Stimulants. The pathological views which recognized local inflammation as the proximate cause of fever, or an almost constant element of the disease, led practitioners to employ stimulants with great caution. They were administered only when the danger from exhaustion was imminent. Apprehension of commencing their use too soon (which was deemed fraught with danger) occasioned frequently delay until the patient was about to succumb, when little hope remained of benefit from a change of treatment. Great timidity in prescribing this class of remedies even now exists, more or less, partly because it is not easy in medical practice to escape from the influences of tradition and of habit, and, in part, because the pathological views just referred to are still in vogue to a considerable extent.

My observations have been sufficient to convince me that, of the great majority of cases of Continued Fever, stimulants may with advantage enter into the management; and that they often form a highly important part of the treatment. They may be prescribed whenever the symptoms indicate the propriety of sustaining measures in general. Feebleness, compressibility, and great frequency of the pulse, diminished impulse and sounds of the heart, coolness of the external surface and copious perspiration, muscular debility, and low delirium — these are the more prominent of the symptoms which point to the importance of supporting the powers of the system. In proportion to the degree of weakness as denoted by these symptoms will be the urgency of the indication, and the extent to which sustaining measures are to be carried.

The stimulants which may be employed, in conjunction with tonics and nutriment, are those of the diffusible class, wine and spirits, and other excitants such as camphor and ammonia. The diffusible, or alcoholic class is most uniformly applicable, and the others may be superadded if it be desired to render the measures still more efficient. Spirits have appeared to me to be preferable to wine, and brandy has been the article I have generally employed.

The period in the progress of the disease when stimulants are called for, will, of course, vary considerably in different cases. They may in some instances be demanded almost from the commencement. Generally speaking, they will be useful after the first week. So, also, as respects the amount to be prescribed, there is no uniformity, and consequently no routine rules can be laid down. This, as well as the time when it is advisable to enter on the use of stimulants, is to be determined by the circumstances proper to individual cases. The quantity which I have been accustomed to give in the average of cases, at a time, is about half an ounce, or a table spoonful. This dose may be repeated with intervals varying from half an hour to six hours, according to the evidences of the need of stimulants, and their effects. To produce a stimulant action upon the digestive organs the brandy should not be too much diluted. An equal quantity of water is sufficient.

With proper care and attention, I feel assured that fears lest the patient should receive injury by commencing too soon the use of stimulants, are groundless. When there is room for doubt as to their propriety, they may be given at first cautiously, allowing sufficient interval to watch their effect. The remedy can be suspended before any considerable harm is done should it be found to be inappropriate. There is much more risk involved in deferring the use of stimulants too long. Just in proportion to their usefulness is, of course, the injury to the patient the longer they are withheld. The time that is lost cannot be regained. It is therefore far better to commence too early than to incur any needless delay; and if the indication be not perfectly clear it is more judicious to test the question by a cautious trial than to wait for farther evidences of exhaustion. Judging from my own observations, if commenced when the indication is a matter of question, and given with due moderation, they will seldom be discontinued. It is easier to maintain strength, than to restore it; and this, as it seems to me should be the end of sustaining measures. Agreeably to this view it is preferable to anticipate the period when the powers of the system evince marked prostration, than to lose any time afterward.

Fear of employing stimulants in fever, is based on their usual effect in health. Their action, however, is quite different when they are indicated to sustain the vital powers. They do not then, in fact, act as stimulants. They do not, even when given largely, disturb the intellect, occasioning any of the phenomena of intoxication; and the influence on the circulation is such that their operation may be called sedative. I have in several instances observed the pulse, when its frequency was greatly increased, numbering from 130 to 140, fall rapidly while the patient was taking half an ounce of brandy hourly, or half-hourly. An illustration of this strikingly sedative effect on the pulse has fallen under my notice within a few days of the time I am penning these remarks. A pulse much increased in frequency, in fact, furnishes a special indication for stimulants.

Aside from the circulation, which should improve under the beneficial operation of stimulants, the evidences of its good effects consist in better warmth and mellowness of the surface, lessened delirium, refreshing sleep, moisture of the tongue, etc. If a more favorable condition does not speedily follow, it is by no means to be inferred that the remedy is uncalled for, and should be discontinued, so long as there is no aggravation of symptoms denoting unpleasant consequences.

As respects other excitant remedies, my experience is mostly limited to the two articles mentioned, viz., *camphor* and *ammonia*. Camphor is supposed by some observers to be especially suited to cases characterized by ataxic symptoms, such as muttering delirium, insomnia, subsultus. The impression derived from some trial of it under these circumstances is, that its value has been overrated. It has not appeared to me to fulfill the expectations formed from the recommendations of others.

The *carbonate of ammonia* is specially suited to cases in which it is desired to produce an effect on the circulation. These and other remedies of an analogous character cannot be considered substitutes for diffusible stimulants, but they doubtless are more or less valuable as adjuvants.

If the views which I have submitted on the subject of stimulants differ from those entertained by many, if not most practitioners, it is not necessary to inform the reader that they are neither original, nor entitled to the character of singularity. In advocating the importance of this class of remedies in the treatment of Fever, I do but contribute my humble testimony to that of several distinguished writers, among whom the names of Drs. Graves and Stokes, of Dublin, are particularly to be mentioned.

Tonics. The indication to *sustain the powers of the system* would seem to call for remedies distinguished as tonics. That they are useful in the treatment of Continued Fever, is altogether probable. Their utility, however, is limited by the fact that their tonic influence is cumulative: an appreciable effect requires an aggregate of doses extended over a considerable period. They are not sufficiently prompt in their action to be of great service in fever. They are better suited to chronic maladies.

The tonic remedies best adapted are the bitter infusions and quinia, especially the latter, which I have frequently prescribed in cases of fever, but I am not prepared to say how much importance is to be attached to it. I cannot conceive of tonics doing harm, whenever sustaining measures are appropriate, except possibly by offending the stomach, and, thus, counteracting the end to which, to be useful, they must be subservient, viz., the ingestion and assimilation of nourishment.

Nutriment. The powers of the system cannot be effectually sustained without the assimilation of aliment. If we would fulfill the general indication under present consideration, then, nutriment must be received, digested, and appropriated by the economy. Are the assimilatory processes suspended in Continued Fever? Observations warrant an answer to this question in the negative. Nutriment, given in this disease, may be retained, without being followed by diarrhœa, the evacuations even being in some instances natural in appearance. Under these circumstances it must be digested and appropriated. I have witnessed a marked development of strength during the continuance of the febrile career. A patient who came under my charge after fever had existed for several days, and who had taken nothing but rice water, presented evidences of great prostration; but under an improved system of dietetics, although the duration of the disease was long, there was a decided gain in muscular strength, as well as in other particulars, notwithstanding the febrile career persisted. If the powers of the system may thus be developed during the continuance of fever, they can be preserved, or, in in other words, sustained by means of nutrition. Upon these facts the importance of nutriment in the management of Continued Fever is based. Relatively, this class of sustaining measures is the most important. It is mainly with reference to promoting the digestion and appropriation of nutriment that stimulants and tonics are useful. Except as subsidiary to assimilation, the good effects of the latter can only be transient, for it is alone through the addition of fresh alimentary supplies that the organism acquires renewed energy and strength. The idea of local inflammation as the proximate cause, or a constant element of Continued Fever, which has rendered practitioners distrustful of stimulants, has also prevented the importance of alimentation from being appreciated. With the attention fixed on inflammation, the *antiphlogistic regimen* was thought to be indispensable. But when it is considered that a great source of danger in fever cases is in the liability that the powers of life will give way before the limited career of the disease is reached, and that a leading indication in the treatment is the one under consideration, viz., to sustain the system, it must be apparent that the only rational ground for doubt is whether the condition of fever is incompatible with the digestion and assimilation of food.

In the management of the disease, my practice is uniformly, after the lapse of a few days, at farthest the first week, to commence the administration of highly nutritious aliment. The forms of nourishment which I have thus far selected, are the *essence of beef*, and what is known commonly in this part of the country as *milk porridge*, consisting of milk scalded, with the addition of a little wheat flour. By the essence of beef is meant the pure juice of the meat, extracted by putting lean portions in a vessel (usually a stone or glass bottle) which is placed in boiling water, no water being added to the meat. The fluid thus obtained is quite different from what passes under the name of *beef tea*, which is merely warm water flavored with *osmazome*, having very slight nutritious properties. Occasionally I have given, in addition to the two articles just mentioned, strong chicken soup.

I direct these forms of diet to be administered systematically, without reference to the appetite or wishes of the patient, generally in alternation, small quantities being given at a time, at short intervals. The quantity of nutriment to be taken in a given time is, of course, to be regulated somewhat by the urgency of the indication for sustaining measures. It should correspond generally with the amount of stimulants, both being conjoined for the same end. The systematic administration of nutriment is also to be commenced at the period in the progress of the disease when stimulants are called for, both being simultaneously entered upon. Explicit specifications as to quantity, and intervals, are to be made in individual cases by the practitioner, especially in private practice, but routine rules cannot be laid down which will apply indiscriminately to all instances. In the average of cases I have been accustomed to direct from half an ounce, to an ounce, of the essence of beef, hourly, and the milk porridge in somewhat larger doses, making up the quantity, if, for any reasons, they are not given regularly at so short intervals. I state this as an approximation to a general rule of diet as respects quantity.

The articles of diet mentioned are selected in consequence of their containing nutritious principles in a concentrated form, and of a digestible character, being, at the same time, easily prepared, and administered.

They are sometimes taken by patients without reluctance, and occasionally are apparently acceptable to the palate. Oftener, however, they are undesired, and frequently considerable disinclination is manifested. The latter may proceed, in a measure, from the indisposition to make any effort, or to be disturbed, which belongs to the disease, rather than from a repugnance occasioned by the idea of food; but, in some instances, the antipathy is apparently not less than to doses of medicine.

As already stated, the course I have pursued is to have the nutriment administered, not only irrespective of any expressions of desire by the patient, but without reference to his appetite, and even when taken with disgust. If the sense of hunger, the appetite, and the taste are competent to govern the ingestion of food in a state of health, this is not true of Continued Fever. The proper exercise of these functions involves normal mental perceptions. In health, the mind feels certain impressions, derived from within the organism, by which the desire for food, or hunger, expresses the demand of the system for fresh supplies. The mind, in health, experiences pleasure from the ingestion of aliment, in other words from the indulgence of appetite, and is capable of discriminating appropriate kinds of food by the sense of taste. All this is changed in fever. The mental perceptions then fail to respond to the wants of the system; the mind lacks sufficient healthful activity for appetite or taste. The system, nevertheless, needs the addition of new materials for calorification and nutrition, and the power of assimilation, although impaired, is not wholly lost. The indication for nutriment, in short, exists, but the criteria pertaining to the consciousness of the patient by which this indication may be measured in health, are perverted or suspended by the disease, so that it becomes necessary to fulfill the indication without consulting the mental functions, viz., hunger, appetite or taste, which were doubtless designed to secure an adequate supply of proper aliment in health.

This, briefly, is the reasoning which leads to the propriety of administering nutriment in Continued Fever. But facts bearing on the subject, have more force than reasoning. The dietetic plan which has been described, I have pursued sufficiently to test, at least, its freedom from danger, or unpleasant consequences. I have not observed any apparent injury from it in a single instance, and I am persuaded that it not only tends to diminish the liability to a fatal termination by asthenia, but that the patient passes through the disease with less expenditure of vital strength, and recovers more rapidly and completely after convalescence is established.

The foregoing views relating to nutriment are by no means novel, although there is reason to think that they have been adopted by practitioners to a limited extent only. Dr. Graves, of Dublin, who dwells emphatically on this point in the management of fever, remarks, that if he has had more success than others in the treatment of the disease, it is owing, in a great degree, to the adoption of the advice of a country physician of great shrewdness, who advised him *never to let his patients die of starvation!*[*] That patients may literally die of starvation when the disease is protracted, and the diet restricted to toast or rice water, does not seem to me improbable; and that the gravity of the disease—the prostration, delirium and other ataxic symptoms, etc., are often due, in no inconsiderable degree, to innutrition co-operating with the essential morbid condition in fever, I am fully convinced.

In conclusion, of the two types of Continued Fever, *Typhus* and *Typhoid*, in the former, as a general remark, measures designed to sustain the system are required more uniformly, oftener with urgency, and at an earlier period in the progress of the disease.

Treatment of Complications. I shall notice only the more important of the complications which have occurred in the cases that have come under my own observation, viz., *Pneumonitis*, *Peritonitis*, *Parotiditis* and *Apoplectic Coma.*

Pneumonitis. It is obvious that in treating any inflammatory complication, the practitioner is not to have reference exclusively to the local affection. A consideration to be borne in mind is, that if the inflammatory affection be subdued, the patient has, nevertheless, to pass through the febrile career. It is also to be considered that there is less energy in the restorative processes, when fever is present, than if the local affection existed alone. Therapeutical measures which might be appropriate were fever not present, if they compromise the ability of the organism to withstand and surmount the febrile disease, may be highly improper. In all cases, remedies are to be employed under the restrictions imposed by due attention to the existence of Continued Fever, irrespective of the application. In the treatment of pneumonitis, as a primary affection, what is commonly known as the antiphlogistic plan of treatment is generally pursued, comprising general and topical bloodletting, antimony, mercurials, counter-irritation, and low diet. Now, in deciding whether the same method of treatment be admissible, or the extent to which it is to be pursued in the treatment of pneumonitis occurring as a complication of fever, we are to take into account the probable effect not alone on the pulmonary affection, but upon the condition of the patient with respect to the fever. Will it be likely to affect unfavorably the progress of the latter disease? To what extent may it be safely and judiciously carried with reference, on the one hand, to the fever, and, on the other hand, to the inflammation? The practical bearing of these questions is sufficiently apparent. If, for example, bloodletting be the particular remedy proposed to be employed, its propriety, or the extent to which it is to be carried, will depend upon whether its usefulness in abating the severity of the pneumonitis be overbalanced by its diminishing the power of the system to sustain the duration of the febrile career. This conservative principle is applicable to the treatment of any, and all the complications of fever, as well as the particular affection under present consideration. According to it proper weight in all instances, will doubtless lead to quite different modes of practice, in individual cases, but, in general, the result will be, that the measures suited to primitive pneumonitis will by no means be uniformly indicated in the management of this affection occurring as a complication in Continued Fever, and, when admissible, it will be to a more or less limited extent.

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[*] System of Clinical Medicine, by Graves & Gerhard, Am. Ed.

It is hardly necessary to say, that various circumstances are to be taken into account in the treatment of pneumonitis superadded to fever, not less than when this affection is primary; such as the previous constitution of the patient; the extent to which the lungs are involved; the activity of the symptoms, etc.

Aside from these, there are certain features somewhat distinctive of the affection occurring as a complication of fever. The cases must be extremely rare in which the lungs become inflamed at the commencement, or during the early part of the febrile career. So far as my observations go, pneumonitis is not developed until the fever has advanced to the period when the antiphlogistic measures that have been mentioned, are always to be employed with caution, lest the ability of the patient to bear up under the febrile disease be impaired. It is obvious that the later, in the progress of the disease, this complication occurs, the more is circumspection, in the employment of these therapeutical measures, called for. An activity of treatment which might be judicious if the pneumonitis were developed at the onset of the fever, would be improper at a subsequent period, other things being equal.

Again, the inflammation of the lungs, developed during the progress of Continued Fever, seldom has that intensity or activity which belongs to acute pneumonitis as a primary affection. The rational symptoms are less prominent, and even the characteristic physical sign, the crepitant rale, is less constant and marked. The affection is more frequently latent. When devel- late in the disease, and especially in the *Typhus* type, (in which it oftener occurs,) it seems in a measure to come from the hypostatic congestion which is due to an enfeebled circulation and a morbid condition of the blood. The inflammatory action, under these circumstances, is of a very low grade. This has been sometimes distinguished as *pseudo-pneumonitis*.

In view of the foregoing facts and considerations, it would appear to be a rational conclusion, that pneumonitis complicating Continued Fever rarely calls for active treatment. General bloodletting is by no means advisable as the rule, but may perhaps be occasionally admissible. Topical bleeding is perhaps proper in a larger proportion of cases. Antimonials are to be employed with more circumspection than when the affection is primary. The propriety of counter-irritation by means of blisters is doubtful. Sinapisms, dry cupping, stimulating liniments, and the like, should constitute the revulsive measures. The appropriateness of mercury is questionable. The reader has doubtless observed that I have made no allusion to this remedy heretofore in connection with the treatment of fever. It was formerly very generally employed, and is still in vogue, to some extent, in the management of this disease. I believe, however, it may be said, that, by the most judicious practitioners at the present time, it is not considered necessary, or useful, in the treatment of fever uncomplicated by local inflammation. The antiplastic effect attributed to mercury would hardly seem indicated in a disease which modern researches have shown to involve, as a constant element, diminution in the fibrinous constituent of the blood. An increase of this constituent obtains in inflammations, and, hence, a rational indication for the supposed antiplastic operation of mercury. Cases of fever complicated with local inflammations have been found to present an increase, instead of a diminution of fibrin, and the inquiry therefore may arise, if, under these circumstances, mercurials are not rationally indicated. I am not prepared to answer this question. My observations furnish no facts bearing on the apparent results of the mecurial treatment of Continued Fever with, or without pneumonitis or any inflammatory complication. With respect to the general views submitted on the subject of the treatment of the complication under consideration, I should remark that, so far as my experience goes, it has appeared to be in confirmation of their correctness.

In conclusion, a practical point not to be overlooked is, that the occurrence of pneumonitis, or any secondary inflammation, does not of necessity conflict with the indication to sustain the powers of the system through the course of the fever. Stimulants, nutritious aliment, and tonics are not to be deferred, or laid aside in consequence of the development of an inflammatory complication, provided they are called for by the symptoms or condition of the patient, irrespective of the local affection. On the contrary, the co-existence of local inflammation may render a supporting plan of treatment more important, in order to increase the ability of the organism to carry on the processes of restoration.

Peritonitis. The remarks on the treatment of Pneumonitis will, in general, apply to Peritonitis, or any local inflammation complicating Continued Fever. To dwell upon this affection would therefore be to recapitulate much that has been already said. Peritonitis may result from intestinal perforation, or it may arise independently of that accident. It cannot, however, be of frequent occurence without a special tendency forming a characteristic of the disease at certain times or places.

Peritonitis from perforation, which is peculiar to the *Typhoid* type, almost of necessity occurs late in the febrile career, or during convalescence. The active measures of treatment generally deemed admissible in primary peritonitis are out of the question. The plan which is rationally indicated, and, which has the sanction of experience, being, if I mistake not, the only plan that has proved successful, consists in the exhibition of opiates in as large doses as can be borne without narcotism, repeated at proper intervals for several days, the bowels being allowed to remain unmoved. The object of this plan is to arrest the peristaltic movements, and favor the adhesion of the peritoneal surfaces surrounding the perforation. Recovery depends upon this object being effected. The chances of success are, however, exceedingly small. The merit of first pointing out and exemplifying the advantages of treating cases of perforation with large doses of opium, belongs to Dr. Graves, of Dublin.

Peritonitis, without perforation, is a less serious form of this complication, and claims the same measures proper to this affection, with all the restrictions applicable to the treatment of any local inflammation occurring in connection with Continued Fever. This general remark comprises all that need be said under this head.

Parotiditis. This complication, as the results of the preceding analyses have shown, involves a special tendency peculiar to the disease at certain times or places. The affection occurs at different stages of the disease, and, sometimes, as a sequel, during convalescence.

In none of the cases characterised by inflammation of the Parotid that I have observed, could it be regarded in the light of a critical event, and, so far from relieving the condition of the patient, he was exposed thereby to a new source of suffering and danger. The inflammation, in the cases that have fallen under my observation, was decidedly phlegmonous in its character, suppuration occurring after the lapse of several days. Active treatment, with a view to prevent the formation of pus, as a general remark, is not judicious, owing to the little prospect of effecting the object, and the risk of compromising the powers of the system. As the formation and discharge of pus will be likely to continue for some time, proving a source of exhaustion, the indication for sustaining measures is increased by the presence of this complication. A few leeches, in some instances, at first, might tend to diminish the intensity of the inflammation. I did not, however, resort to this measure in any of the cases that have fallen under my observation. Warm fomentations, and cataplasms to the inflamed part, opiates to relieve pain, opening the abscess so soon as fluctuation is discovered, and, afterward, a liberal administration of stimulants, tonics and nutriment, constituted the measures addressed to this complication.

Apoplectic Coma. Coma, developed more or less suddenly, is an event liable to occur during the career of Continued Fever. Could this complication be prevented, or relieved by appropriate treatment, the fatality of the disease would be diminished, inasmuch as in a certain proportion of cases a fatal termination is due to this event. In the *Second Clinical Report* I have called attention to symptoms referable to the respiration which precede and accompany apoplectic coma, by means of which the occurrence of this complication may be anticipated, showing, also, that the seat of the affection is at the medulla oblongata, life being destroyed by apnœa arising from suspension of the functions pertaining to that portion of the nervous system, which preside over the respiratory acts. The pathological condition upon which apoplectic coma occurring in fever depends, is a subject open for discussion, and farther investigation. It would be out of place to consider this subject in the present connection, but the treatment must have some reference to the pathological views which are entertained. I have submitted the opinion that the complication is due to effusion within the arachnoid cavity.* If this be the correct explanation, the probability of success from any therapeutical measures, after sufficient effusion has taken place to induce a state of coma, is slight. The suspension of the functions of the medulla is due to the mechanical pressure from the presence of fluid. To relieve the condition of the patient, the resorption of this effused fluid, or a portion of it, is to be effected. The chances are against the attainment of this end soon enough to rescue the patient from apnœa. The measures which suggest themselves, and to which I have thus far resorted, are a blister to the nucha, revulsives to the extremities, and cold applications to the head, other measures being continued or adopted according to the symptoms.

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* See remarks on effusion within the arachnoid cavity, by the author, in the April No. of the Buffalo Medical Journal. 1850.

Although an exceedingly dangerous complication, apoplectic coma is not necessarily fatal. An instance affording a striking illustration of recovery under the most discouraging symptoms, is given in the *First Clinical Report:* case of McDonald, see section devoted to symptoms referable to the nervous system. (Page 45.)

Treatment of Convalescence. I do not propose to consider the details of the management of Convalescence. Every physician is familiar with the precautions to be observed during the period which intervenes between the expiration of the febrile career, and the recovery of the usual health and strength. In this interval, the system is peculiarly susceptible to injury from over exertion of the powers of body or mind, and imprudences of any kind. The common idea that relapse of fever arises from error of management, is questionable. The singular contrast exhibited in the reports of the two preceding analyses with respect to this sequel, tends to disprove this idea. The recurrence of a brief febrile career would seem to arise from some intrinsic tendency peculiar to the disease at certain seasons.

There is one point, pertaining to diet, respecting which the views commonly entertained appear to me to be faulty. I refer to the apprehensions frequently, if not generally felt by practitioners, in allowing a nutritious animal diet early in convalescence. These apprehensions, which I am persuaded are imaginary, have probably arisen, from the habit of associating Inflammation with Fever. The susceptibility to disorder, or consecutive diseases, is probably owing to the enfeebled condition of the organism after passing through the febrile career. It is an object, therefore, in the management of convalescence, to effect a return of the accustomed constitutional vigor as speedily as practicable. The means for this end are, aliment of the most digestible and nutritious kind, tonics, stimulants, and hygienic measures, of which one of the most useful is early gestation in the open air. I have pursued this course in a sufficient number of cases to feel satisfied from experience that it is not only unattended by danger, but is conducive to the well being of the patient. I have never witnessed any unpleasant results from the effort to re-establish the strength of the patient by resorting at once to an animal diet, etc.

A great advantage of the sustaining plan of treatment during the febrile career pertains to convalescence. The patient emerges from the disease with the powers of the constitution less enfeebled, the liability to *sequelæ* is diminished, and the recovery is more rapid and complete, other things being equal, in proportion to the pains taken to preserve, up to the date of convalescence, undue reduction of strength.

THIRD CLINICAL REPORT

ON

CONTINUED FEVER:

BASED ON AN

ANALYSIS OF SIXTY-FOUR CASES.

Since the preparation of my Second Report on Continued Fever, in the summer of 1851, which is contained in the seventh volume of the Buffalo Medical Journal, another six months' service as attending physician to the *Buffalo Hospital of the Sisters of Charity*, has transpired. The hospital records during this period, viz., from October, 1851, to April, 1852, embrace a larger number of fever cases than have heretofore been treated, in the same length of time, since the institution was established. This, probably, was partly in consequence of the hospital accommodations having been increased in 1851, so that it is now capable of receiving a considerably larger number of patients than hitherto; and, in part, because the sick supported by the emigrant fund have been more uniformly sent to this institution than formerly. The number of cases, the histories of which were recorded during my last term of service, is *sixty-four*, making with the number previously analysed, *one hundred and sixty-four*. The labor of the two analyses, so far as my own mind is concerned, instead of rendering the subject tiresome or disagreeable, has served to enhance an interest therein, so that is difficult to forego the gratification of subjecting this new collection of recorded data to similar methods of interrogation, in order to compare the results with those contained in the former Reports. The majority of the readers of the Buffalo Medical Journal, however, may not sympathize with this feeling, and I could hardly expect that their patience would endure another series of articles on this subject so extended as those which have preceded. In fact, conscious that the announcement of a *Third Clinical Report on Continued Fever* may be likely to give rise to impatience, if not disgust, at the prospect of a repetition of all the dry, tedious details of another investigation, I am desirous to make haste in giving an assurance that such is not my present intention. I design only to examine the cases with reference to points possessing peculiar interest or importance. In this Report I shall not aim to enumerate and compare all the events, or symptoms, that have been recorded, with a view to their relations, respectively, to each other, and to the natural history of the disease; but my object will be to study the facts only in so far as they relate to questions which are more or less unsettled, and in which every medical reader is supposed to feel an interest. The identity or non-identity of the two types of Continued Fever, *Typhus* and *Typhoid;* the circumstances involved in the distinctive diagnosis, and the treatment of the disease, will form the most prominent of the points to which attention will be directed; and I shall content myself with stating the results relating to these points as briefly as possible, indulging in very few comments. By pursuing this course, I shall hope to make the following Report not altogether uninteresting to those who have honored the previous Reports by a careful perusal, and, at the same time, render it acceptable to those who have become subscribers to the Journal with the commencement of the present volume, as well as to some, (if not many) who, from a want of fondness for the minutiæ of statistical researches, may have been in the habit of leaving unread the articles that I have heretofore contributed on the subject. Should I fail in attaining these ends, at all events the space occupied by the present Report will be comparatively small, so that, in consideration of good intentions, even the captious reader will perhaps vouchsafe his indulgence.

Of the *sixty-four* cases upon which the present Report is based, *fourteen* were of the *Typhoid* type; *forty-two* were cases of *Typhus*, and in *eight* the diagnosis is not positive. The latter, therefore, are to be included under the head of cases of *Doubtful type.* In this collection the cases of *Typhus* preponderate considerably over those of *Typhoid.* The reverse of this was true in both previous collections. This variation does not necessarily indicate that the *Typhus* form of Continued Fever was more prevalent during the past season, but it is in part owing to a greater number of emigrants having been sent to the hospital, and, as will be seen, it is partly due to the fact that more cases were developed within the hospital limits than heretofore. Adding the *Typhus* and *Typhoid* cases respectfully in the three Reports, and the result is as follows:

Number of *Typhoid* cases, - - -	61
Number of *Typhus* cases, - - - -	65

The preponderance of the *Typhus* cases in this collection thus renders the aggregate of cases of each type nearly equal. Of the *fourteen* cases of *Typhoid* Fever *five* were fatal. *Five* of the *forty-three* cases of the *Typhus* type ended fatally. *All* of the eight cases of *Doubtful type* recovered. As respects mortality, this collection compares favorably with the cases treated in previous years. The consideration of this fact will come up in an appropriate place hereafter.

It will be most convenient to distribute the facts to be presented in this Report in the same sectional divisions that have previously been adopted. Reference can then be readily made to any particular topic in the three Reports. This plan will be pursued, but the limited scope of the present Report will involve the omission of more or less of the topics enumerated in the headings of the several sections.

I shall make no reference to the cases of *Doubtful type*, in the twelve succeeding sections, but devote some attention to them afterward.

SECTION FIRST.

Age, Sex, Nativity, Season. Constitution, and previous health. Period of Residence in this Country. Duration of Disease before coming under Observation.

Age. Typhus. The average age in *thirty-five* cases is a fraction under 26, or, to be precise, 25, 32–35 years. In this group of cases are included *five* in which the ages respectively were but 10, 9, 10, 15, 13. Excluding these cases, and the mean age is 28 1-3 years. This group embraces among the oldest patients the following ages:— 58, 46, 45, 43, 40, 37.

The average age in the *five* fatal cases is 28 2-5.

Typhoid. In the *fourteen* cases of this type the average age is a fraction over 25 years. The youngest patient was 20 years, and this was the age precisely in six of the cases. The oldest patient was 50 years; the next oldest, 34; the next, 27; and the next, 24.

The average age in the *five* fatal cases is 28 3·5.

In these enumerations we find, as in the previous Reports, that the *Typhus* type exhibits the maximum of age, and the highest mean. We find, also, that the average age in the fatal cases of both types is higher than in those ending in recovery.

Sex. *Typhus.* Males, 26; Females, 16.
Typhoid. Males, 10; Females, 4.

Nativity. *Typhus.* *Thirty-six* were from Ireland; *two* were Germans; *two* were English, and *one*, French. In *one* case the nativity is not noted. Of the five patients not from Ireland all, save one, were either immigrants lately arrived in this country, or the disease was developed in the hospital. The excepted case was that of the Frenchman, who had been in America three months, and in Buffalo six days. Whether he had been brought in contact with the disease prior to being attacked, or not, is not stated.

Typhoid. *Six* were Irish, and *eight* were Germans.

Season. *Typhus.* The cases were distributed among the several months as follows:— October, *none;* November, *four;* December, *nine;* January, *eleven*; February, *ten;* March, *eight.*

Typhoid. The cases occurred as follows: — October, *two;* November, *one;* December, *four;* January, *three;* February, *two;* March, *two.*

Constitution and previous health. *Typhus.* In *twenty-one* cases it is noted that the patients, up to the time of being attacked with fever, were in good health. In *fifteen* cases the facts with respect to this point are not noted. In *six* cases the histories show the previous health not to have been good. In one of these cases the patient had been poorly, without any definite ailment, during the passage across the Atlantic, being attacked with fever shortly after his arrival. In the five remaining cases the patients were attacked in hospital, having been admitted for other affections, as follows:— acne, *one;* varioloid, *one;* chronic conjunctivitis, *two,* and in *one* case the patient had shortly before passed through the career of *Typhoid* fever.

Typhoid. In *six* cases the facts with respect to this point were not noted. Of the remaining *eight* cases, the previous health was good in *six.* In *one* case the disease, as stated by his attending physician, was preceded by Intermittent fever, and in the other case, the patient had had cough and more or less diarrhœa for seven weeks before being attacked with fever; these symptoms being probably due to tuberculosis of the lungs.

Period of residence in this country. *Typhus.* In *nine* cases the patients were attacked within the hospital. In the remaining *thirty-three* cases, the patients had resided in this country as follows: — For a period not exceeding *one* week, (six days,) *one* case; not exceeding *two* weeks, *seven* cases; do. *three* weeks, *six* cases; do. *four* weeks, *two* cases; do. *five* weeks, *five* cases; do. *six* weeks, *one* case; do. *seven* weeks, *one* case; do. *eight* weeks, *one* case.

For periods longer than eight weeks, *nine* cases, viz., five months, eight months, three months, seven months, ten months, eight years, three years, four months, two and a half years.

Five of this group of patients were members of the same family, and came over in the same ship. *Three* other patients were also related, and crossed the Atlantic together.

Typhoid. The shortest period of time any of the patients had been in this country was seventeen days. This was the period in *one* case. In *one* case the period was *nineteen* days. In *one* case the period did not exceed *three* weeks, and in *one* case it did not exceed *four* weeks. In *one* case the patient was attacked with the disease in the hospital. The periods longer than four weeks were respectively as follows:—fourteen weeks, five months, six weeks, six months, eight months, one and a half years.

Duration of disease before coming under observation. From the enumerations under this head in the last Report, it appeared that patients are more apt to enter the hospital so soon as they are obliged to take to the bed when the type of the disease is *Typhus;* and also that the average duration of the disease, dating from the time of taking to the bed, before entering hospital, is shorter in cases of *Typhus*, than of *Typhoid.* An examination of the cases in this collection with reference to these points develops the same results. Excluding cases in which the patients were attacked in the hospital, the duration prior to admission is noted in *twenty-four* cases of *Typhus*, and in *ten* cases of *Typhoid.* Of the twenty-four cases of *Typhus*, in *six* the patients did not take to the bed until they entered the hospital. This was true of only *one* of the ten cases of *Typhoid.*

The mean duration of the disease, from the time of taking to the bed to the time of coming under observation, in the cases of *Typhus* exclusive of those who did not take to the bed prior to entering the hospital, in the *Typhus* cases is 5 10-17 days; in the *Typhoid* cases 7 7-9 days.

SECTION SECOND.

Access. Circumstances supposed to have been concerned in the production of the disease.

Access. In cases of fever received at different stages of the febrile career, it is frequently difficult to obtain precise, reliable information respecting the previous history. Owing to this difficulty, the duration of the access, (the only point that I shall consider under this head, in the present Report) was determined in a portion only of the cases, although more pains were taken to obtain this information than heretofore. It will be borne in mind that the data determining the duration of the access, as stated in the previous Reports, are the first prodromic symptoms, and, the time of taking to the bed. The latter circumstance is selected, as, on the whole, the best criterion (although by no means perfect) for marking the end of the access, and the beginning of the febrile career. These data are noted in the histories of *eighteen* cases of *Typhus*, and *ten* cases of *Typhoid*. A comparison of the two types develops the following results: — Of the *eighteen* cases of *Typhus*, the attack was sudden in *seven;* that is to say, in these seven cases the patients took to their beds on the first day on which any symptoms of disease were present. The longest duration of the access in the *Typhus* group, was *seven* days. The mean duration in the cases of this type is 4 4-11 days.

Of the *ten* cases of *Typhoid*, the attack was sudden in but *one* case. The longest duration was *ten* days. The mean duration is 5 3-8 days.

These results, thus, exhibit a larger proportion of cases of the *Typhus* type in which the disease occurs abruptly, without any access; a higher maximum of duration in cases of *Typhoid*, and a shorter average duration* in cases of *Typhus*.

Circumstances supposed to have been concerned in the production of the disease. In a large proportion of cases the patients, as has been seen, were immigrants but lately arrived in this country. In these cases, and, indeed, as a general remark, in all excepting the patients who were already inmates of the hos pital when attacked, it would be difficult to obtain reliable information concerning circumstances which, directly or indirectly, might be more or less involved in the causation of the disease. The histories, therefore, contain very few facts of importance except in the cases which were under observation before fever became developed. I shall direct attention, with reference to the subjects belonging under this head, to the latter cases only, and the chief point of interest will be the enquiry in how far do they exemplify the operation of *Contagion.*

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* In the Second Report, after giving the duration of the access in *ten* cases of *Typhoid*, and *six* cases of *Typhus*, I have remarked, " The foregoing results do not afford any confirmation of the law, deduced from extensive observations, that the *Typhus* type of Continued Fever oftener commences with a sudden attack, or is ushered in by an access of shorter duration than *Typhoid*." An examination of the figures shows that this statement is not altogether correct, and I regret to be obliged to conclude that it must have been written without due attention. If the reader will turn to the second Section of the Second Report, and take the trouble to compare the cases of the two types with respect to this point, he will find that the duration in the *Typhoid* cases is a fraction longer than in the cases of *Typhus*, the ratio being as 3 6-7 days is to 3. In the proportion of the cases of sudden attack, however, the law of the disease was reversed, i. e. the instances were more numerous in the *Typhoid* group, the ratio being as 3-10 is to 1-6.

Eleven of the patients affected with the *Typhus* type, were attacked with the disease in the hospital. I will give briefly the facts, so far as they relate to the present subject, which are contained in the histories of these cases severally.

CASE I. — This patient had been employed as a domestic in the hospital for twelve months. She had been accustomed to be frequently in the ward in which fever patients were received, making the beds of these, as well as other patients, etc. The case was the fifteenth that occurred in the order of time. She was attacked Jan. 3d. She was well up to the date of the attack. The case was the first that proved fatal.

CASE II. — This patient was admitted in December with acne. He was in the general ward with fever patients until the 18th of December, when he left the hospital. Jan. 26th he entered with fever. Strictly speaking, he was thus not attacked in the hospital, but had been in hospital shortly before being attacked. He was a German, and had been in this country a year. This case ended fatally.

CASE III. — This patient entered with varioloid, the disease not being declared prior to his admission. He remained in the general ward a couple of days, until the character of the disease was manifested, and was then transferred to a separate apartment. The varioloid was very mild, the eruption being quite small. He was an Englishman, and had arrived in this country but a few days before his admission. Twenty-two days after the date of his admission, having, in the mean time convalesced from the varioloid, he took to the bed presenting the eruption and other symptoms of *Typhus.*

CASE IV. — This patient had been in the hospital three months in the capacity of porter. Had been accustomed, occasionally, to sit up with fever patients at night. He was attacked February 1st, having been, up to that time, in good health. This was the twenty-ninth case in chronological order.

CASE V. — This patient had been in the hospital three months for chronic conjunctivitis. She was in the surgical ward, and it is not stated whether she had been in the habit of visiting the female ward in which fever cases were received, or not. She had been in this country sixteen months.

CASE VI. — This patient had been in hospital a year with chronic conjunctivitis. It is not stated how long he had been in this country, nor how frequently he had been in the general ward in which fever cases were received. Surgical patients, however, frequently passed through, and visited this ward. This was the thirty-seventh case.

Case VII. — This patient had been in hospital between three and four months, as a boarder, being in good health. It is stated that he had not slept in the general ward, but he was probably frequently in this ward. It is not stated how long he had been in this country. This was the thirty-fourth case.

Case VIII. — This patient entered hospital about three weeks before being attacked. He was in good health when admitted. He was a German, and had been in this country about six months. He was attacked in March, making the thirty-seventh case.

Case IX. — This patient had been employed as a cook for ten months. She had been in the ward in which were fever patients a few times, remaining each time but a few minutes. This was the thirty-eighth case.

Case X. — This patient had been a surgical patient with chronic ophthalmia for ten months. It is stated that he had not been in contact with fever patients. Attacked in March.

Case XI. — This patient entered with *Typhoid* fever presenting the characteristic eruption, etc., and was convalescent on the twenty-third day after taking to bed, and the sixteenth after the date of admission. He was attacked with *Typhus* on the twenty-sixth day after the date of convalescence from *Typhoid*, presenting the characteristic eruption, etc., of the former type. He was convalescent from *Typhus* on the seventeenth day after taking to the bed. He died about three weeks after my time of service expired, with tuberculosis of lungs. Some account of the autopsical appearances will be given in the section devoted to that subject.

In addition to these cases, one of the Sisters of Charity connected with the institution was attacked with *Typhus* in January, and died on the tenth day of the disease. Notes of this case not having been taken, it is not included in the collection for analysis. This Sister was one of two who were added during the past year, to the institution; so that, up to the date of this Report, *five* of *twelve* Sisters have had fever. A fact especially bearing on the question of contagion is, that to the Sister who died with the disease was assigned the care of fever patients, and she was the only Sister brought into close proximity to fever cases, except those who had already had the disease. *Up to the present date, in fact, every Sister to whom has been assigned, during the terms of my service, the duty of nursing fever cases at this institution, has suffered an attack.**

The accommodations at this hospital have, as yet, not enabled the entire separation of fever cases from patients affected with other diseases. Heretofore no instance (with a single exception mentioned in the second Report) has occurred in which fever has apparently originated in the institution, save in those who have been brought into close and continued contact with the disease by nursing the sick. Assuming that in most, if not all the cases which have just been enumerated, the disease was due to contagion, there are several circumstances accounting for its diffusion in this way during the past winter. The number of *Typhus* cases admitted was considerably greater than in any previous year. The number of patients with various diseases was also greater, and hence the general wards appropriated to fever and other diseases, were more crowded. The winter, moreover, was unusually severe, and, on this account, ventilation was less practicable.

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* In some of the cases of *Doubtful type*, the disease was developed in the hospital. See section fourteenth.

The two latter circumstances, it may be said, are adequate to account for the generation of the special cause of fever irrespective of contagion. It is probably true that from concentrated animal exhalations may be evolved a miasm capable of developing *Typhus*. Had these cases occurred in immigrants lately arrived, the supposition might be entertained that the special cause of the disease was imbibed prior to entering the hospital; but it will be observed that, with a single exception, all the patients had been in this country for a considerable period of time. The latter explanation is consequently hardly admissible. The former, however, it must be considered, has sufficient force to affect somewhat the conclusiveness of the evidence which the cases afford of contagion; and the argument of the non-contagionist is in some degree favored by the fact, that in some of the cases originating within the hospital, the patients were not brought into close or frequent contact with the disease. Notwithstanding these considerations it seems most rational to attribute the origin of the disease, in these instances, to contagion.

In none of the cases of the *Typhoid* type did the disease originate in the hospital. The only instance admitting the supposition of a contagious influence was in the case of a female, the wife of a patient who died with this type of fever. She was not an inmate of the hospital during the illness of her husband, but was with him daily more or or less. Three days after his death she was admitted with fever which proved to be *Typhoid*. In this case it may be suspected that the disease was communicated, but it is perhaps quite as reasonable to suppose that the special cause was received by both persons from the same source, and that the circumstances connected with the attendance of the wife on her husband, were only indirectly involved in the development of the disease.*

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* A son was also admitted with *Typhoid* about the time my term of service ended, making *three* cases of the same type in this family.

Assuming the instances in which fever originated in the hospital to be explained on the supposition of contagion, it is to be observed that they were cases of the *Typhus*, not the *Typhoid* type. This shows, not only the greater contagiousness of *Typhus*, but that its offspring is the same form of fever — a fact of importance in its bearing on the question of the identity or non-identity of these two types. But the facts given in No. 11 of these cases is especially interesting with reference to this question. In that instance the patient entered with *Typhoid* fever, and in about three weeks after convalescence, was attacked with *Typhus*, presenting, successively, the distinctive characters of both forms of fever, including those pertaining to the eruption. This is a striking case, which cannot but be considered to sustain the doctrine of the non-identity of *Typhus* and *Typhoid.*

SECTION THIRD.

Symptoms referable to the general aspect and expression of countenances.

I do not propose to enumerate the symptoms belonging to this section. The results would show the existence of more or less capillary congestion of the face as a constant element of both types, and a marked degree of this congestion as a distinguishing feature of *Typhus.* They would also show that a circumscribed flush of the cheeks pretty uniformly attends cases of either type complicated with pneumonitis, and the absence of this symptom in cases in which pneumonitis did not exist.

I have given sufficient examination to the histories with reference to these points to be warranted in the general statements just made.

SECTION FOURTH.

Symptoms referable to the nervous system. Mind. Coma.

Mind. More or less manifestations of delirium, consisting in incoherent talking, or efforts to get out of bed, were noted in *thirty* of the *forty-two* cases of *Typhus;* and in *nine* of the *fourteen* cases of *Typhoid.*

It is by no means probable that the patients who exhibited no manifestations of delirium were entirely free from mental aberration. It is very rarely the case that the faculties of the mind remain wholly unaffected during the career of Continued Fever. It is possible that had these cases been more constantly and completely under observation than is practicable in a hospital, even with the greatest attention, some evidences of delirium might have been discovered. The presence of this symptom was noted in all instances in which any manifestations were apparent at the daily visits, or had attracted the attention of the attendants in the intervals between the times of making the daily records. Inquiries were always carefully made with respect to this point, and it is uniformly noted either than delirious manifestations were, or were not apparent.

It will be observed that the proportion of cases in which this symptom existed, is larger in the *Typhus* group; the exemption from delirium in this group being in the ratio of about twenty-eight per cent., while it is about thirty-five per cent. in the *Typhoid* cases. The disparity between the two types, in this particular, is less striking than in the former collections.

The difference was greater as respects the stage of the disease at which the manifestations of delirium occurred. In no case of *Typhoid* did they occur until the febrile career had continued for several days, while they were frequently observed in the cases of *Typhus* early in the disease, and sometimes almost at the very commencement.

In nearly all the cases in which there were no manifestations of delirium, the disease was mild, as shown by the symptoms and the shortness of the career. This was true of every instance in the *Typhoid* group, and in all but three instances of the cases of *Typhus*. In every fatal case, save one, delirium occurred. In the excepted case, which was of the *Typhus* type, the patient died with apoplectic coma.

The degree of delirium was variable in the different cases, and also at different periods in the same cases. It was always more prominent at night, and frequently was only manifested at that time.

None of the cases in this collection were characterized by very active, persistent delirium, requiring restraint, of which a few instances are given in the former Reports.

Coma. The comatose state became suddenly developed, proving fatal, in *four* cases, *two* of *Typhus*, and *two* of *Typhoid.* In *two* other (*Typhus*) cases there occurred a close approach to coma, and in several instances a lesser degree of approximation thereto. I shall have occasion to refer to these cases in the section devoted to the Respiratory System, and I will therefore defer the details until I take them up in that connection.

SECTION FIFTH.

Symptoms referable to the digestive system. Alvine dejections, Tympanites, Tenderness of abdomen.

Of the *forty-two* cases of *Typhus*, more or less constipation was present in *twenty-seven;* and diarrhœa was absent in all but *ten* cases. In each of these ten cases the diarrhœa was mild, and of short duration, in several instances lasting but a single day.

Of the *fourteen* cases of *Typhoid*, diarrhœa, more or less in duration and degree, existed in *thirteen;* the single remaining case was characterized by constipation. The diarrhœa was generally mild, and easily restrained by an opiate administered by the mouth, or by injection. In some instances it continued more or less throughout the febrile career, and in other cases it was of short duration.

The proportion of *Typhus* cases characterized by diarrhœa is not far from that developed by the previous analyses; but the proportion of cases of *Typhoid* in which this symptom was present is considerably larger than in the former collections. I can assign no reason for the latter fact. It renders the contrast between the two types, as respects this symptom, more striking than appears in the former Reports.

Tympanites. The following enumerations, relate, *first,* to the absence of this symptom *during all the time the cases were under observation:* that is, by the statement of its absence is meant that it was never at any time present. *Second,* they relate to the *degree* of tympanites as expressed by the terms *slight*, *moderate*, and *considerable.* Here, also, it is meant that these respective degrees were present once, or oftener, while the cases were under observation. Frequently in the cases in which moderate or considerable tympanites existed, it continued for a short period, perhaps for a single day only; and in some instances in which it existed in a slight degree, it was absent the greater part of the time. The results then, it is to be borne in mind, have no relation to the habitual condition of the abdomen as respects this symptom while the disease was in progress; but only the proportion of cases in which tympanites, in different degrees, was present at any time, and for ever so short a period during the febrile career. It is obvious that, with this explanation, the enumerations do not cover an important point of comparison, viz., the proportionate duration of the symptom. Thus, two cases may be on equal ground in the fact that moderate meteorism existed in both; but in one case the moderate meteorism may have continued during the whole course of the disease, and in the other case it may have existed but a very short period, perhaps being noted only on one day. It would be difficult to institute a comparison of the two types as respects the duration, as well as presence or absence and the degree of tympanites, without occupying considerable space. It will perhaps suffice to say, in general terms, that the individual cases in the *Typhoid* group presented this symptom, in its different degrees, much more frequently during the progress of the disease than the cases of *Typhus*. In a large proportion of the latter group of cases, in fact, this symptom was of very short duration, often being observed only once or twice. In this point of view the two groups of cases exhibited a contrast more striking than is apparent in the following enumerations:

Of the *forty-two* cases of *Typhus*, tympanites was absent in *twelve*, and present in *thirty* cases.

It was slight in *ten* cases; moderate in *fourteen* cases, and considerable in *six* cases.

Of the *fourteen* cases of *Typhoid*, tympanites was absent in *one* case, and present in *thirteen* cases.

It was slight in *two* cases; moderate in *five* cases, and considerable in *six* cases.

These results differ from those developed by the former analyses, in the larger proportion of instances in which tympanites was present in the *Typhoid* cases. It is curious to observe how nearly as respects the proportion of cases in which the symptom was present in the *Typhus* cases, the results of the former analyses are repeated. Adding together the cases of *Typhus* in the two previous collections and tympanites was present in the ratio of 16 – 22. In the present collection it was present in 15 – 21! This similarity is striking. But in the *Typhoid* cases the same conformity does not exist, for while in the cases which enter into the two previous collections the symptom was present in but *thirty-four* of *forty-seven*, the present analysis gives it in *thirteen* of *fourteen* cases. I can assign no reason for this disparity.

It will be remarked that the proportion of instances in which the tympanites was considerable and moderate, is much larger in the *Typhoid* cases. This accords with the results of the former analyses.

Tenderness of abdomen. The remarks made with reference to the duration of tympanites will measurably apply to the present symptom. The enumeration of the cases in which tenderness was present, embraces all in which it was noted at any time, even on a single record, during the career of the disease; and, on the other hand, in the cases in which it was not noted, it was never present at the times of the daily examinations. So in those cases in which it was considerable, it is not to be understood that it was uniformly present in that degree, but that it was so on one day, or more. With respect to the continuance of this symptom, the same is true as with tympanites, viz., it was more frequently or uniformly present during the progress of the disease in the cases of *Typhoid*, than in those of *Typhus*, its greater duration constituting quite as distinguishing a trait of the former type, as that of tympanites.

Of the *forty-two* cases of *Typhus*, abdominal tenderness was absent in *twenty-seven*, and present in *fifteen*.

It was *slight* in degree in *nine* cases; *moderate* in *five* cases, and *considerable* in a single case.

Of the *fourteen* cases of *Typhoid*, abdominal tenderness was absent in not a single case.

It was *slight* in *three; moderate* in *five*, and *considerable* in *six* cases.

These results accord with those developed by the previous analyses in showing a greater frequency of tenderness in cases of *Typhoid*, and its presence in a more marked degree in cases of that type. They differ, however, from the results contained in the former Reports in exemplifying the distinctive traits of the *Typhoid* type in a more striking manner. In the present collection of cases, tenderness was in no instance absent in the *Typhoid* group, while in the former collections it existed in a large proportion of cases, but was not uniformly present. In this collection the tenderness was oftener considerable in degree in the *Typhoid* group. And in the *Typhus* group, in this collection, tenderness was absent in a larger proportion of cases than in the two former collections. Thus, a comparison of the results of different analyses with respect to this, as well as other points, is interesting as showing sometimes considerable numerical fluctuations, but nevertheless concurring to establish by their uniformity certain laws of the disease, and principles of diagnosis. The results of the former analyses authorized us to consider the more frequent occurrence of abdominal tenderness, and the greater prominence of this symptom, as characterizing the *Typhoid* type of Continued Fever. The foregoing results differ from those previously developed, in furnishing more striking proof of the correctness of this distinction!

In this collection of cases, as heretofore, the abdominal tenderness was frequently confined to the right or left iliac regions, more especially to the former, and when more extensive it was especially marked in these situations. This was true of the cases of either type, but particularly those of the *Typhoid* group.

Hæmorrhage from the bowels did not occur in any instance, save that in one fatal case of *Typhoid*, shortly before death, the dejections were somewhat bloody.

Slight bleeding from the gums occurred in one case, which was of the *Typhus* type. This case did not prove fatal.

Parotitis occurred in but a single case, which was of the *Typhoid* type It became developed about the time of convalescence. The right gland was alone affected. The affection proceeded to suppuration, and the patient recovered. The case presenting this complication, or, rather, in this instance, sequel, was admitted in March, being one of the latest of the recorded cases.

Perforation of intestine did not occur in any of the cases in this collection, nor *peritonitis* irrespective of this accident.

SECTION SIXTH.

Cutaneous eruptions.

Typhus. Of the *forty-two* cases of this type, the characteristic maculated eruption was present in *thirty-six*, and absent in the remaining *six*.

The eruption was quite abundant in *twenty-seven* cases.

It was more or less copious on the limbs, as well as body, in *twenty-seven* cases.

A few *maculæ* were observed on the face in one instance.

In *seven* cases, intermingled with the *maculæ*, were more or less of the rose-colored *papulæ* characteristic of *Typhoid:* in other words, the eruption exhibited mixed characters. Inasmuch as considerable interest and importance belong to the eruption in its relations to diagnosis, and the question of the identity or non-identity of the two types, I will give a brief statement of the facts pertaining to this symptom in the cases just referred to.

Case I.— The patient presented on her admission, the sixth day after taking to the bed, an eruption, extending over the body and limbs, consisting in part of spots, rose-colored, somewhat elevated, the redness disappearing on pressure; and in part of others which were small, dusky, the redness not disappearing on pressure. It is subsequently noted that the greater part of the eruption was of the latter description. The eruption continued, gradually fading, for fifteen days after the date of admission.

Case II. — The patient presented, on admission, the fifth day after taking to the bed, an eruption, the greater part of which consisted of rose spots, large, elevated, and disappearing on pressure, the remainder small and dusky. The eruption extended over the body and limbs, and continued until the day of death, this being a fatal case.

Case III. — At the time of taking to bed, this patient presented an eruption with mixed characters. It was copious, extending over the body and limbs. It continued to present mixed characters so long as observed, remaining visible up to the day before convalescence.

Case IV. — On the fourth day after taking to the bed, a few rose spots were visible, elevated, and disappearing on pressure. The day following, a a copious eruption appeared over the body and limbs, being in part rose colored, etc., but the greater part having the typhus characters. The eruption gradually faded, but was visible up to convalescence.

Case V.—On the second day after taking to the bed, an eruption appeared over the body and limbs, dusky, not disappearing on pressure. On the fourth day it was noted that the eruption presented mixed characters, and this was observed for the three following days.

Case VI. — An eruption appeared in this case on the day on which the patient took to the bed, over the abdomen and chest, copious, and presenting the characters of *Typhus* and *Typhoid* intermingled. It continued to be thus mixed, and disappeared two days before the date of convalescence.

Case VII. — On the second day after taking to the bed an eruption made its appearance, copious, dusky, not elevated, and the redness not readily disappearing on pressure. Subsequently a few rose spots with the *Typhoid* characters became developed, and were intermingled. The eruption continued visible for ten days, gradually fading.

I have no doubt respecting the correctness of regarding the foregoing cases as belonging to the *Typhus* group. In all instances in which there seemed any room for doubt as to the diagnosis in this collection, as heretofore, the cases were rejected, and placed under the head of *Doubtful type*. The distribution was made after carefully surveying all the symptoms and events belonging to the history. These cases, thus, presented the *Typhus* eruption with more or less of the *Typhoid* eruption superadded. The history of the eruption, aside from the sensible characters, points to *Typhus*. It appeared earlier in the disease than the *Typhoid* eruption, it continued longer, it was more copious, and extended over the limbs as well as the chest and abdomen. I shall revert to this subject presently.

In *nineteen* cases, the time of the first appearance of the eruption, reckoned from the date of taking to the bed, was accurately determined. This was not practicable in a larger number of cases, in consequence of patients frequently not entering the hospital until after the eruption had appeared. Of these *thirteen* cases, in *four*, the eruption appeared on the very day of taking to the bed; in *ten*, it appeared on the *second* day; in *two*, on the *third* day; in *one* case on the *fourth* day; in *one*, on the *sixth*, and in *one*, on the *eighth* day. In the two cases last mentioned, the patients took to the bed as soon as they were attacked.

The average period elapsing from the time of taking to the bed to the first appearance of the eruption, according to the foregoing data, is about *two and a half* days.

The duration of the eruption was noted in *fourteen* cases. The number of days in the cases respectively are as follows: — 17, 16, 10, 7, 9, 8, 12, 11, 14, 15, 16, 7, 7, 10.

The average duration will, thus, be between *eleven* and *twelve* days.

The eruption uniformly, after a few days, commenced to fade, and gradually became less distinct from day to day until its disappearance.

Typhoid. Of the *fourteen* cases of this type, the characteristic eruption was present, in a greater or less degree, in every case.

The eruption was abundant in but a single case, the rose spots in all the cases, with this exception, being not numerous, and in some instances quite small. The smallest number of rose spots counted in any case was *three.* So small a number as this occurred in but a single instance. The next smallest number was *four.* In only two cases, were so few as this observed. In the remainder of the cases, exclusive of the case in which the quantity was copious, the number ranged from a dozen to fifty. The number varied at different periods of the febrile career.

In not a single instance is it noted that the eruption extended to the extremities, being confined, in all, to the chest and abdomen.

In no instance among the cases in this group did the eruption present mixed characters. The traits distinguishing the *Typhoid* type were uniformly preserved.

The time of the first appearance of the eruption, reckoning from the commencement of the febrile career, or the date of taking to the bed, was ascertained in *six* cases. The number of days in these cases successively, are as follows: — 2, 6, 7, 3, 12, 11. This gives an average of a fraction less than *seven* days.

The duration was noted in *seven* cases, and was, in the cases, individually, as follows: — 10, 4, 7, 13, 3, 6, 11.

The average is found to be *seven* days. The foregoing results differ from those developed by the previous analyses chiefly in the uniform presence of the eruption in the cases of the *Typhoid* group. In the two collections of cases before analyzed, it was present not invariably, but in a large proportion of the cases of this type. On reference to the first and second Reports it will be found that in the *Typhus* group the eruption existed in the larger number of instances. The reverse is true of the present collection, but this is not owing to the proportionate number of cases of *Typhus* in which the eruption was absent being greater, but to the constancy of the eruption in the cases of *Typhoid.* Why such a contrast should exist it is impossible to say.

On comparing the time of appearance, and the duration of the eruption in the two types, we find very striking points of distinction in the earlier period at which it is observed in *Typhus*, its abundance in a larger proportion of cases, extending very frequently over the extremeties, its mixed character in a few instances, and its longer duration. There are important points to be considered, in discriminating the two types, in addition to the striking differences in the sensible characters of the eruption, viz., that in *Typhus* being maculated, small, orbicular, dusky, and the redness not readily disappearing on pressure; in *Typhoid*, papular, larger, oval, rose red, and the redness disappearing momentarily on pressure.

The mixed character of the eruption in a small proportion of the cases of *Typhus*, is a point of interest and importance. In discriminating between the two types considerable stress is properly to be laid on the sensible appearances of the eruption, and, hence, when the two eruptions are intermingled, difficulty as to the diagnosis might be expected to arise from this circumstance. My observations thus far lead to the conclusion that this intermingling occurs in cases of *Typhus* only. It is desirable to settle by more numerous observations, whether cases of the *Typhus* type are alone liable to this variation from the general rule of each type preserving with distinctness its peculiar eruption. Should this law be established, such variations would, of course, occasion no practical difficulty whatever. The presence of a well marked *Typhus* eruption would denote the type of the disease whether more or less "*rose spots*" are intermingled or not. Were the eruption frequently to exhibit mixed characters, the fact might be considered justly to militate against the doctrine of the non-identity of the two types. Instances in which this peculiarity is observed, are, however, few in number, as shown by their small proportion in this, and the preceding collections.

One of the distinguishing features of the *Typhus* eruption is not always very strongly marked. I allude to the non-disappearance of the redness on pressure. In several of the cases in the present collection it is noted that the redness did not *readily* disappear on pressure. Frequently the redness can be made to disappear on firm pressure, and in this particular different spots present at the same time, in the same case, will be found to differ. Reference was made to this fact in a single case in the second Report. It will also occasionally be observed that some rose spots in the *Typhoid* eruption disappear but partially on pressure. This was noted in one case mentioned in the first Report.

A petechial eruption occurred in but a single case in this collection. The petechiæ were few in number, confined to the abdomen and chest, appearing late in the febrile career. The case ended in recovery, and was not one of unusual severity.

Miliary vesicles, or sudamina, were observed in *four* cases, all of the *Typhus* type. They were not carefully sought for in every case, and may therefore have existed in some instances, in small numbers, and escaped notice. In the cases in the histories of which their presence is noted, they were abundant.

SECTION SEVENTH.

Symptoms referable to the Respiratory Apparatus. Pneumonitis. Epistaxis. Aberrations of respiratory movements.

Pneumonitis. The data are insufficient for determining the precise number of cases in which pneumonitis existed. This arises from the histories not uniformly embracing records of physical signs. The presence of this complication is rendered positive by the evidence of physical explorations in *ten* cases, *seven* of which were of the *Typhus*, and *three* of the *Typhoid* type. It undoubtedly existed in a greater number of instances. In all the cases in which it is certain that pneumonitis existed, the respirations were increased in frequency, the cheeks generally presented a circumscribed flush, and there was some dilation of the alæ nasi. These symptoms are more distinctive than cough and expectoration. It is superfluous to say that physical exploration furnishes demonstrative evidence either for, or against the existence of this complication, and that this cannot be claimed for any, or all the symptoms referable to the respiratory system.

I regret that my observations in the cases forming this collection only authorize these few remarks. My apology is, that my daily duties rendered it extremely difficult, and almost impossible to determine and record the physical signs daily while the cases were under observation.

Epistaxis. Of the *forty-four* cases of *Typhus*, epistaxis occurred in *five*, and its non-occurrence is noted in all the remainder. In the five instance in which this symptom was present, the periods of its occurrence were as follows: — 1. On the *eighth* and *ninth* days of the febrile career, and in this case slight hæmorrhage from the gums occurred. 2. *Fourth* day. 3. Day before taking to bed. 4. Several times before admission. 5. *Fifth* day. It was slight in all but one instance, in that case being considerable, but not profuse.

Excluding one case of *Typhoid* in which nothing is said respecting this symptom, of the remaining thirteen cases its presence is noted in the histories of *four*, and its absence in the remaining *nine*. The periods of its occurrence were as follows; — 1. Twice during the access. 2. *Eighth* and *ninth* days. 3. *Second* day. 4. *Ninth* day. In none of the cases was it profuse.

These results correspond very nearly with those developed by the first analysis. They show the presence of the symptom in a larger ratio of cases in *Typhoid* than in *Typhus*, sustaining the correctness of regarding this fact as one of the points distinguishing the two types from each other.

Aberrations of respiration. Under this head I shall direct attention only to the occurrence of *spasmodic inspiration.* In the second Report I gave a brief account of the circumstances connected with this aberration in several cases, which appeared to invest it with considerable importance as a symptom accompanying and forerunning the development of sudden coma, or an approach to the comatose state. Special attention was directed to this symptom in observing the cases entering into the present collection. It occurred in several instances, and I will proceed to give briefly an account of the circumstances in the cases respectively.

Typhus. CASE I. — The symptom occurred on the *seventh* day after taking to the bed. The record of symptoms on the *sixth* day is as follows: — "Reports better. Aspect the same. Passed a quiet night. No pain. Mind dull. No subsultus. Pulse 128. Capillary congestion considerable. Respiration 32. Slight cough. Surface warm and dry. Tongue coated and dry. Slight sordes about teeth. Anorexia. Thirst. One dejection. Eruption continues. Slight meteorism. No abdominal tenderness."

On the *seventh* day, at A. M., the record is as follows: — "Reports the same. Passed the night quietly, manifesting no delirium. No pain. No subsultus. Mind quite dull. Eyes suffused. Tongue moderately coated and dry. No nausea. Anorexia. Thirst. Three or four dejections during the past twenty-four hours. Pulse 128. Capillary congestion considerable. Respirations 28. Eruption continues. Considerable meteorism. No abdominal tenderness."

"P.M. Pulse 128. *Spasmodic inspiration.* Treatment —T. opii, grs. xx. Blister to nucha. Brandy ℥i. hourly."

Eighth day. "The difficulty of respiration increased during the evening until the inspiration became loud and highly spasmodic. During the night she gradually improved. *She is easily aroused this morning, but in the evening with difficulty.* She reports feeling well. No pain. Eyes less suffused. Speaks more distinctly. Surface perspiring. Alæ nasi dilate moderately. No subsultus. Tongue dry and coated. Sordes about the teeth. Two or three dejections during the last twenty-four hours. Pulse 120. Moderate capillary congestion. Respirations 36. Occasional cough without expectoration. Eruption continues. Some meteorism. No abdominal tenderness. Treatment — Brandy ℥i. hourly."

After this date she continued to improve daily, and six days afterward was distinctly convalescent.

Case II. — This was one of the gravest of the cases ending in recovery. The aberration under consideration occurred at night on the twelfth day of the febrile career. The symptoms on the morning of this day were noted as follows: — "Reports no better. Delirious during the first part of the night, but slept quietly during the latter part. No pain. Mind quite dull. No deafness. Slight subsultus. No tinnitus. No dilation of alæ nasi. Eyes slightly suffused. Remains on her back in a somnolent state, but is easily aroused. Anorexia. Thirst. No nausea, nor vomiting. No epistaxis. Takes brandy and nutriment readily. Pulse 128. Moderate capillary congestion. Eruption continues over body and limbs. Considerable meteorism. Abdomen tender on pressure. Skin warm and dry. Treatment — Brandy ℥ss. every half hour, with carb. ammonia grs. iii."

Thirteenth day. "At nine last evening the respiration became disturbed, the inspiration being short and quick. A blister 4×4, was applied to the nucha. This morning the respirations are frequent, but the rhythm is normal. Somewhat delirious during the first part of the night, but slept occasionally during the latter part. Moderate capillary congestion. Eruption continues. Meteorism slight. Abdominal tenderness continues. Frequent cough, without expectoration. Mind dull. Slight deafness. Marked subsultus. Quite restless, constantly moving her hands and throwing off the bed clothes. Tongue moist and coated. No sordes. Respirations 24. No epistaxis. Pulse 144. No dejection for several days."

From this date she slowly improved, and was convalescent on the twenty-fifth day.

Case III. — The inspiration became spasmodic on the *seventh* day. Up to that time there were no symptoms denoting unusual gravity of disease. On the *fifth* day the record is as follows: — "Reports the same. Passed the night quietly. No pain. No subsultus, nor tinnitus. Eyes suffused. Slightly deaf. Mind somewhat dull. Tongue coated and dry. Sordes about the teeth. No nausea. No dejection. Pulse 114. Moderate capillary congestion. Respirations 34. No cough. Eruption slightly faded. Meteorism moderate. No abdominal tenderness."

Seventh day. "Passed a very restless night, talking incoherently, and frequently attempting to get out of bed. He did not, however, appear to be in an alarming situation until about 5 o'clock, A. M., when he became dull, and the inspiration spasmodic. Stimulants were given freely, sinapisms applied to different parts of the body, and a blister over the occiput. At 7, his appearance denoted some improvement. The respiration was still distended, and the inspiration, except when he was aroused, slightly spasmodic. The respirations were also irregular, an interval occurring after about every sixth respiratory act. He reports better. Says he has no pain. Mutters. Considerably deaf. Eyes suffused. No subsultus. Tongue dry and coated. Sordes about the teeth. Tongue readily protruded. No nausea. One dejection during last twenty-four hours. Pulse 130. Respirations 6 or 7. Surface warm and moist."

Died at evening.

At the autopsy, in this case, the larynx was carefully examined to ascertain if œdema, or any mechanical obstruction existed. None whatever was found, and the antero-posterior diameter of the glottis appeared to be unusually large.

CASE IV. — Spasmodic inspiration and coma occurred in this case, on the *sixth* day of the febrile career, and death on the following morning. Up to the evening of the day on which the above symptoms became developed, there were no circumstances in the history of the case denoting immediate danger. The disease, in fact, appeared to be unusually mild. The following is the morning record on the *sixth* day: — "Reports better. Slept considerably. Aspect improved. Somewhat deaf. Mind not dull. No subsultus. Nausea and vomiting frequently. Tongue covered with a thick yellow coating. Some sordes. Herpetic eruption on lips. One dejection. Respirations 16, and rhythm normal. Slight cough. Moderate capillary congestion. No suffusion of eyes. No epistaxis. Skin mellow. No perspiration. No meteorism. Slight abdominal tenderness. Somnolent. Pulse 96 and well developed."

Evening. "Has spasmodic inspiration and cannot be aroused. Pulse feeble and frequent."

Seventh day. "Died at 4, A. M."

Typhoid. CASE I. — Disorder of the rhythm of respiration was first noticed in this case on the thirteenth day of the febrile career. Up to that time the symptoms denoted a mild grade of disease. The following is the record on the morning of the *thirteenth* day: — "Aspect the same. Passed the night quietly, without delirium. Says that he has pain in the umbilical region, but it is not sufficient to keep him awake. No subsultus. Tongue dry and thickly coated. Sordes on teeth. Pulse 108. Slight capillary congestion. Respirations 26, rhythm normal. Slight cough, without expectoration. Nineteen rose spots. Moderate meteorism and abdominal tenderness."

On the *fourteenth* day the record is as follows: — "Yesterday morning this patient was observed by the Sister nursing him, to catch his inspiration in taking drink. In the afternoon Mr. Smith, the resident student, observed that the inspirations were slightly spasmodic. A blister was immediately applied to the nucha. This morning the respirations are 16, the inspirations slightly spasmodic. He can with great difficulty be roused. Up to the present time he has been able to swallow without much difficulty, and he can now be made to swallow but with considerable difficulty. He began to grow dull last evening but was easily aroused. The pulse was then 114 and well developed. He was found this morning apparently moribund. Pulse 132, feeble."

Died at 1, P. M.

Case II. — In this case a sudden change for the worse, eventuating speedily in coma, with spasmodic inspiration, took place on the seventh day of the febrile career. There were evidences of pneumonitis on both sides in this case, but, aside from this, the symptoms did not denote great gravity of disease. On the *sixteenth* day the record was as follows: — "Not dull. deafness much diminished. Eyes not suffused. Tongue dry, and moderately coated. No sordes. One dejection in past twenty-four hours. Pulse 110. Respirations 42, rhythm natural. Frequent cough, with slight expectoration. Crepitant rale on both sides posteriorily."

Seventeenth day. "Last evening she became suddenly worse; restless, groaning frequently; perfectly rational, not somnolent, declared she should not live till morning. About an hour afterward the pulse was 122, full; moderate capillary congestion; appeared quite comfortable; no change of rhythm of respiration; talked rationally. This was at 8½ o'clock, P. M. At 10 o'clock she was comatose; respirations 23, *and the inspiration spasmodic.* Surface warm and perspiring. *Deglutition difficult.* The nucha was scarified, and strong aqua ammonia applied, after which she became considerably aroused. In about half an hour afterward, she relapsed into the comatose state, and died at 3, A. M., of the following morning.

In the autopsy of this case the larynx was carefully examined, but no appearances of œdema were present.

These were all the instances in which this aberration of respiration was present in a marked degree. In several other cases there was some approach to a spasmodic inspiration. Having been led by the observations of the previous year to regard this symptom as a precursor of coma, the cases were closely watched with reference to its occurrence, and whenever it was observed in ever so slight a degree, a blister was directly applied over the nape of the neck. This measure appeared in several instances to determine the return of normal rhythm, and prevent the development of the comatose state. That it exerted any such influence, however, is of course only a matter of conjecture.

The circumstances connected with this symptom in the cases in which it was observed in the present collection, and in the cases upon which the second Report was based, certainly seem to invest it with considerable importance. In the last Report I ventured to indulge a hypothesis respecting the pathological condition upon which it depends. I am not, however, prepared at this time, more than when that Report was written, to offer any positive proof of the correctness of the hypothesis.

SECTION EIGHTH.

Symptoms referable to the circulation.

In stating facts referable to the circulation, I shall give simply results, without the details presented in the two previous Reports.

The pulse was enumerated once, and sometimes twice daily in all the cases, during the progress of the febrile career. From these data I have calculated the mean frequency in the cases individually; and from these, in round numbers, i. e. disregarding fractions, the following averages are obtained:

Typhus. The average mean frequency of the pulse in the *Typhus* cases is a fraction over 107.

Excluding the *fatal* cases, and the mean frequency in the remainder is a fraction over 104.

The mean frequency in the *five* fatal cases is a fraction over 126.

Typhoid. The average mean frequency in the *Typhoid* cases, collectively, is 99.

Excluding the *fatal* cases, and the mean frequency in the remainder is 93.

The mean frequency in the *five* fatal cases is 110.

These results concur with those developed by the previous analyses, showing in the *Typhus* group a higher average of frequency of the pulse, in the cases collectively, in the fatal cases, and in those ending in recovery. It will be perceived, also, on reference to the corresponding sections in the two former Reports, that the results, irrespective of this comparison of the two types, are not very discordant.

The greatest degree of frequency of the pulse observed during the febrile career, and the highest mean in any individual case, in this, as well as in the preceding collections, are found in the *Typhus* group. The greatest degree of frequency observed in any case not proving fatal, was 156. So great frequency was noted in but one case. The next highest in frequency, was 148. The next, 144. In several cases the pulse reached 140.

The greatest frequency noted in any of the fatal cases, was 160.

The maximum of the mean frequency in any of the *Typhus* cases ending in recovery, was 124, and in the cases ending fatally, 148. The lowest mean in any of the cases ending in recovery was 86, and in the fatal cases 106.

In the *Typhoid* group, on the other hand, the greatest degree of frequency observed in any of the non-fatal cases was 132. So great frequency as this occurred in but a single case, and it diminished at the evening of the same day to 100. The next highest was 128, and the next 116. In the fatal cases the highest point reached was 138. The maximum of the mean frequency in any of the *Typhoid* cases not proving fatal, was 103, in the fatal cases 117. The lowest mean in the non-fatal cases was 80, in the fatal cases 100.

All these results show a marked difference between the two types in the amount of influence exerted by the disease on the circulation.

In this collection, as heretofore, the cases of either type exhibited striking diversities in the frequency of the pulse, and striking fluctuations in this respect were often observed in different periods of the febrile career in the same case.

A fact which is mentioned in the former Reports was in a few instances noted in this collection of cases, viz., a diminution of the frequency of the pulse below the average of health, occurring about the time of convalescence. In one case it fell to 54; in another to 56, and in two cases to 68. All these cases were of the *Typhus* type.

Capillary congestion, evidenced by redness of the surface, disappearing on pressure, and returning more or less quickly after the pressure was removed, is noted in the histories of all the cases save two (one of *Typhus* and one *Typhoid*) and in these excepted cases nothing is stated relative to this point. This congestive redness was always more marked on the face than in any other part, and sometimes confined to that situation.

A point of disparity between the two types relates to the degree in which this symptom was present. The congestion, as a general rule, was greater in *Typhus*, frequently giving a dusky or dingy hue to the countenance.

Arranging the variations in three grades distinguished, respectively, as *considerable*, *moderate* and *slight*, and comparing the cases of *Typhus* and *Typhoid*, as regards the number of instances exemplifying each grade, and the results are as follows:—

Of *forty-one* cases of *Typhus*, in *fifteen* the capillary congestion was *considerable;* in *twenty-five* it was *moderate*, and in *one* case only was it *slight*.

Of *thirteen* cases of *Typhoid*, in but *one* case was it *considerable;* in *nine* cases it was *moderate*, and in *three slight.*

SECTION NINTH.

Symptoms (*exclusive of eruptions*) *referable to the Skin.*

Having given in the Second Report the symptoms relating to temperature, dryness, moisture and sweating, as noted in a considerable number of cases, individually, on successive days during the progress of the disease, I shall dispense, in the present Report, with these details. Were I to prepare similar tables (the data for which are before me) so far as I can judge from a general survey of the facts, the results would be materially the same. There would be nothing gained by such a repetition. I propose in this section to study the cases with reference to a single subject, which is one of interest, and importance. I refer to the occurrence of perspiration in the course of Continued Fever, its influence on the progress and issue of the disease, and its significance as a prognostic. The results disclosed by the former analyses led to conclusions at variance with ideas which are frequently, if not generally entertained by medical practitioners. These conclusions were, " that we are not warranted in predicating expectations of speedy convalescence, or of recovery, upon either of these symptoms (moisture and free perspiration) disconnected from other circumstances, nor do these results afford any grounds for supposing that to induce moisture or sweating by therapeutical means, will be likely to prove beneficial." Now, do the facts contained in the present collection of cases sustain these conclusions? In the former analyses it was found that moisture and sweating "were observed at different periods of the febrile career, in a large proportion of instances not preceding by a short space of time the date of convalescence. Moreover, these appearance were observed in nearly one-half of the cases which ended fatally." These were the considerations upon which were based the conclusions just stated. Let us see if, on examination of the cases in this collection, facts are found to correspond with those heretofore developed.

It will suffice to interrogate the histories respecting the presence of sensible perspiration without taking pains to state whether it consisted in moisture, or in free sweating.

Excluding fatal cases, of the *thirty-seven* remaining in the *Typhus* group, in *twenty-eight*, *moisture* of the surface or sweating more or less profuse, occurred either once, or several times, during the course of the disease, while the patients were under observation.

Of the *nine* cases of *Typhoid*, excluding the fatal cases, the same was true of *five*.

Of the *twenty-eight* cases of *Typhus* characterized by perspiration, it took place at, or near the date of convalescence in *eleven;* and at other periods of the disease, not being speedily followed by a favorable termination of the febrile career, in *seventeen*.

Of the *five* cases of *Typhoid* characterized by perspiration, it took place at, or near the date of convalescence in not a single instance, in all the cases not being speedily followed by a favorable termination of the febrile career.

According to these results, then, the occurrence of moisture or sweating in the course of Continued Fever, considered abstractedly, cannot be considered an indication that convalescence is near at hand. The balance of probabilities, in fact, is against such an anticipation.

Directing attention now to the fatal cases, of the *five* cases of *Typhus* ending fatally, perspiration occurred toward the close of life in *two*, and at periods in the disease more or less remote from the close, in *three*.

Of the *five* fatal cases of *Typhoid*, perspiration occurred toward the close of life in *three*, and at other periods in *two*. Thus, in one half the cases of either type ending fatally, perspiration took place irrespective of its occurrence at, or near the time of death.

The foregoing results, it will be perceived on reference to the former Reports, accord, in a striking manner, with those developed by the previous analyses. The views therefore, as set forth in the quotation from the Second Report, respecting the importance to be attached to the occurrence of perspiration in the progress of Continued Fever, and to the efforts to produce this symptom by therapeutical means, are sustained, provided the reasoning therein involved be legitimate.

Another mode of interrogating the facts contained in the cases respecting the influence of perspiration on the progress of the disease, is to examine the symptoms immediately preceding, and following its occurrence. It may be supposed that perspiration generally accompanies an abatement of the severity of the disease, although it does not in the majority of instances herald convalescence. We will direct a little attention to this point. And in order to determine the condition of the patients prior, and subsequent to the occurrence of perspiration, it will probably answer to ascertain the relative frequency of the pulse at these times. The pulse may be considered a thermometer of the grade of severity of the disease sufficiently for the present object. I will give the enumerations of the pulse, in several cases, on the day previous to the occurrence of perspiration, the day on which the perspiration was noted, and the subsequent day. In the following table the instances in which perspiration occurred at periods of the disease more or less remote from the date of convalescence, will of course only be selected. In some cases perspiration continued for several days in succession, or was frequently repeated. These cases will be rejected. Fatal cases are also excluded:

Pulse day before Perspiration.	Day of Perspiration.	Subsequent day.
No. 1. *Typhus*, 120.	120 A. M. 116 P. M.	100.
No. 2. " 108.	104.	104.
No. 3. " 132.	124.	118.
No. 4. " 108.	100.	88.
No. 5. " 128.	128.	120.
No. 6. " 156.	134.	128.
No. 7. " 110.	120.	104.
No. 8. " 106.	124.	136.
No. 9. " 90.	100.	108.
No. 10. " 111.	108.	98.
No. 11. " not noted.	120.	120.
No. 12. " 120.	112.	120.
No. 13. " 112.	138.	112.
No. 14. " not noted, day of admission.	100.	96.
No. 15. " 132.	*126 and 116.	118.
No. 16. *Typhoid*, 132.	100.	100.

* Perspired two consecutive days.

The results displayed in the foregoing table, obtained after the preceding portion of this section was written, are interesting, and, I confess, to me unexpected. In this point of view, perspiration appears either to occasion, or signify, an improvement, in so far as the pulse is a criterion of the latter. Finding no grounds, numerically, for the opinion that this symptom is generally the precursor of convalescence, it was natural to presume that it would be found to possess small importance as a means, or a sign of improvement. It would appear, however, that in a very large proportion of instances, it is followed by more or less diminution in the grade of severity of the disease. This being the case, the views which have been expressed respecting the probable inutility of diaphoretics may require to be modified, since it is manifestly a legitimate object of therapeutics to endeavor to abate the intensity of disease when we are unable either to arrest it, or abridge its duration.

In several of the cases ending in recovery in this collection, moisture, or sweating more or less copious, occurred several times during the febrile career. It may be worth while to inquire respecting the gravity of the disease in the cases thus characterized. With reference to this inquiry, I will throw into a tabular form the facts contained in the histories of these cases, relating to—*first*, the number of days on which either moisture or free sweating occurred; *second*, the mean frequency of the pulse during the febrile career; *third*, the duration of the disease from the time of taking to bed to convalescence, and *fourth*, the number of days the patients were under observation.

Cases.	No. of days on which moisture or sweating was noted.	Mean frequency of Pulse.	Duration of Disease.	Number of days under observation.
1. *Typhus.*	5.	112.	13 days.	9.
2. "	5.	107.	12 "	12.
3. "	7.	108.	13 "	13.
4. "	4.	100.	12 "	12.
5. "	5.	94.	14 "	11.
6. *Typhoid.*	8.	89.	16 "	16.
7. "	5.	80.	16 "	16.
8. "	3.	80.	23 "	16.

The results exhibited in the foregoing table show a grade of severity, as exhibited by the pulse and duration, somewhat less than the average in all the cases characterized by the more or less frequent recurrence of perspiration, with a single exception, viz., the first case in which the mean frequency of the pulse was 112. The inference, therefore, from the cases now analyzed, would be that, other things being equal, the repeated occurrence of perspiration is generally associated with mildness of the disease. This inference, however, is by no means to be adopted as a law of Continued Fever, for, in the first place, the data are too few for such a deduction, and, in the second place, it is to be considered that perspiration was repeated in several of the small number of cases in this collection which proved fatal. The facts with respect to the latter point are as follows:—Of the *ten fatal* cases of both types, perspiration occurred more than once in *four*. In one case it was noted on *five* days; in one, *three* days; and in *two* cases, *two* days.

SECTION TENTH.

Symptoms referable to the Genito-urinary System.

Notwithstanding the views expressed in the Second Report, of the importance of recording examinations of the urine in cases of Continued Fever, the histories that, in the mean time, I have collected, contain very little relating to this subject. The few observations that were made, I will give as noted in the cases respectively.

Typhus.

No. 1. On the *third* day the urine was acid, with a slight phosphatic deposit, and the sp. gr., 1.016.

No. 2. On the *first* day the sp. gr. was 1.023, and there was a slight trace of albumen.

No. 3. On the *second* day, the urine contained a small quantity of albumen. It deposited on cooling the urate of ammonia. On the *twelfth* day, sp. gr., 1.023.

No. 4. On the *second* day, sp. gr. 1.026. There was a considerable deposit of the urate of ammonia, and a trace of albumen. On the *fourth* day, sp. gr. 1.014, and a small quantity of albumen.

No. 5. On the *tenth* day tne sp. gr. was 1.026; it deposited urate of ammonia, and exhibited a trace of albumen.

No. 6. On the *fourteenth* day, sp. gr. 1.0–5, and a trace of albumen.

No. 7. On the *sixth* day, deposited urate of ammonia. No other change.

No. 8. On the *sixth* day, sp. gr. 1.022, a small deposit of urate of ammonia, and a trace of albumen. On the *twenty-first* day (three days before convalescence) sp. gr. 1.023, and normal.

No. 9. On the *sixth* day, sp. gr. 1.014, and a small quantity of albumen.

Typhoid.

No. 10. On the *ninth* day, sp. gr. 1.026, deposite of urate of ammonia. *Twelfth* day (four days before convalescence) deposited urate of ammonia. Day after convalescence, sp. gr., 1.019.

These isolated observations are of course insufficient for analytical examination. They show that urate of ammonia is apt to be deposited at different periods of the febrile career, and that the urine frequently contains a small quantity of albumen. If a conjecture were to be indulged respecting the latter, it might be attributed to a certain degree of congestion, which it is probable exists internally, as well as upon the surface of the body, and from which the kidneys would not be likely to be exempt.

The facts relating to the specific gravity have little or no value, inasmuch as the quantity of the secretion was not ascertained.

SECTION ELEVENTH.

Duration of the disease. Sequelæ. Mode of dying. Fatality.

Duration. In order better to compare the two types with respect to duration, I will examine the facts pertaining to each type under a separate head, giving, in this Report, results without details. The duration from two points of view only will be considered, viz., from the date of taking to the bed, and from the time of admission into hospital, to the day of convalescence, or to the day of death.

The duration of the access has already been considered in another section. It would be useless to determine the duration in the cases not fatal to the time of discharge from hospital, as this was too often affected by circumstances entirely foreign to the disease.

Typhus. The data for determining the duration from the date of taking to the bed, to the day on which convalescence was pronounced, are contained in the histories of *thirty-four* cases. The mean duration is *fifteen* 8–17 days. The maximum of duration, in this point of view, was *twenty-six* days. The minimum duration was *nine* days.

The duration from the time of admission into hospital to the day of convalescence is ascertained in *twenty-five* cases.* The mean duration is *eleven* 9 – 25 days. The maximum duration, in this point of view, was *twenty* days, and the minimum duration, *six.*

Typhoid. The data for determining the duration from the time of taking to the bed to the day of convalescence, are contained in the histories of *six* cases. The mean duration is *eighteen* 1–3 days. The maximum duration was *twenty-three* days. The minimum duration, *eleven* days.

The duration from the time of admission into hospital to the day of convalescence, is determinable in *seven* cases. The mean duration is *thirteen* days. The maximum duration was *sixteen* days. The minimum duration, *nine* days.

These results approximate closely to those developed by the first analysis, differing, as did the latter, from those afforded by the second.

They show a shorter mean duration in *Typhus*, dating both from the time of taking to the bed, and admission into hospital.

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* The remainder of the patients were inmates of the hospital when attacked.

The cases of *Typhoid* approximated, individually, nearer the mean duration than those of *Typhus*, the latter type affording the greater maximum, as well as minimum duration.

Directing attention, now, to the duration of the *fatal* cases, the following are the results:

Typhus. Mean duration from date of taking to bed, to fatal termination, *twelve* 3–5 days. From time of admission into hospital to fatal termination, *seven* days.

Maximum duration, from taking to bed, *eighteen* days; minimum, *nine* days.

Maximum duration, from admission into hospital, *nine* days; minimum, *five* days.

Typhoid. Mean duration, from date of taking to bed to fatal termination, *twenty-one* 1–5 days. From time of admission into hospital, to fatal termination, *fourteen* 4–5 days.

Maximum duration, from taking to bed, *twenty-seven* days; minimum, *thirteen* days.

Maximum duration, from admission into hospital, *twenty* days; minimum, *twelve* days.

Sequelæ. A large proportion of the patients remained in hospital but a short period after convalescence. My observations relative to *sequelæ*, therefore, not extending over much space of time, are few. I will give all the facts which appear in the histories.

Typhus.

Case 1. Mild diarrhœa occurred during convalescence.

Case 2. Sloughing, on the nates, superficial, and to a limited extent, occurred about the time of convalescence.

Case 3. Several furunculi appeared shortly after convalescence.

Case 4. Ecthyma occurred shortly after convalescence.

Case 5. In this case the patient became convalescent, and sat up on the twenty-third day after the date of the attack. On that afternoon he was attacked with a severe chill which lasted an hour, during which the pulse could not be felt at the wrist. Five or six months prior to being attacked with *Typhus*, he had had Intermittent fever. The pulse became very frequent when reaction took place, numbering 148. Several dejections occurred, and muttering delirium. The next day he had another chill in the afternoon, and on the following morning perspired freely. Death occurred on the succeeding day. The record of the symptoms after the relapse occurred is rather imperfect.

Case 6. This case was followed by tuberculous deposit in the lungs and spleen, and death in about two months after convalescence. The patient had had *Typhoid* fever a short time before being attacked with *Typhus*, the latter disease being developed while he remained in hospital after convalescing from *Typhoid*.

Typhoid.

Case 1. Twenty-two days after the date of convalescence, the patient was attacked with Dysentery, which proved fatal.

Case 2. Parotitis occurred at about the time of convalescence. Reference has already been made to this case in the section relating to the digestive system.

Relapses. Case No. 5, (*Typhus*,) in the foregoing list, might perhaps with propriety be considered a case of *relapse of fever.* Aside from this case, relapse occcurred but in a single instance. In this respect the present collection as well as the first, presents a striking contrast to the second. In the single instance referred to, the patient was seized with headache, pain in the limbs, and febrile movement, *seven* days after the date of convalescence, having, in the mean time, been able to sit up a little. On the fourth day after the second attack, free perspiration occurred, which was renewed for several successive nights, and the patient was again shortly convalescent.

Mode of dying. Typhus cases.

1. Ninth day after taking to bed, by asthenia.
2. Eleventh do., and fifth after admission, by asthenia, preceded by apnœa.
3. Twelfth do., and seventh after admission, by apnœa, apoplectic coma.
4. Eighteenth do., and ninth after admission, by asthenia.
5. Thirteenth do., and seventh do., by apnœa, apoplectic coma.

Typhoid cases.

1. Fifteenth day after taking to bed, and twelfth after admission, by apnœa, apoplectic coma.
2. Twenty-seventh do., and twentieth do., by asthenia.
3. Thirteenth do., and twelfth do., by apnœa.
4. Twenty-fifth day do., and twelfth do., by asthenia.
5. Twenty-sixth day do., by apnœa.

Fatality. The number of cases that proved fatal has already been stated, viz., *five* of the cases of each type, i. e. *ten* in the whole number of cases analyzed, viz. *sixty-four*. In this enumeration the instances of death occurring subsequent to the career of fever are not included. Death took place in one case from dysentery supervening on *Typhus*; another from relapse of fever; and a third from tuberculosis. Since in each of these instances the patients had convalesced, and the issue was not due to the fever except so far as it may have predisposed to the consecutive affections, or diminished the power of resistance inherent in the organism, it would hardly be proper to consider these as cases of fever ending fatally.

As already stated, one case of *Typhus* which, the history not having been recorded, is not included in the collection, ended fatally. I refer to the death of the Sister of Charity mentioned in the Second Section. In determining the rate of mortality this should be included, which makes *eleven* of the *sixty-five* cases, proving fatal. This gives nearly a ratio of *one* death to every *six* cases, or 17 *per centum.*

This rate of mortality is less than in the two collections of cases previously analyzed. For reasons assigned in the last Report, it would be unfair to infer from this difference the superiority of the management of the cases in this collection. The treatment, as will be seen in the section devoted to that subject, was not altogether the same as heretofore, but the fluctuations in fatality at different times and places are so great as almost to preclude any positive deductions as to the success of any particular plan of management in any collection of cases. Negative conclusions, however, may be adopted with less reserve, in view of a large proportion of recoveries. In other words, the treatment under these circumstances, it may fairly be claimed, could not have been highly pernicious.

A striking point pertains to the dates of the fatal cases. Up to Jan. 3d not a single death from Continued Fever had occurred. More than half of my six months' service had then expired, and I had then treated *fourteen* cases of *Typhus, seven* cases of *Typhoid,* and *three* cases of *doubtful type,* in all *twenty-four* cases. The dates of admission of the fatal cases, respectively, were as follows: *Typhus.*—Jan. 3; Jan. 15; Jan. 15; Jan. 26; March 5. *Typhoid.*—Jan. 19; Jan. 26; Jan. 29; Feb. 18; March 11. Thus, it is perceived, *four* of the *five* recorded *Typhus* cases, and *three* of the *five* *Typhoid* cases proving fatal, were admitted in the month of January. If, now, the reader will turn to *Section First,* he will find that during the month of January *eleven* cases of *Typhus,* and *three* of *Typhoid* were admitted, making *fourteen cases;* so that one-half of the cases received during this month proved fatal—an enormous proportion compared with the ratio of deaths to recoveries in any other month. It would hardly seem probable that this was owing merely to coincidence, and, if not, there must have existed during that month, for reasons utterly inexplicable, an unusual tendency, in cases of fever, to a fatal result. Striking differences in this respect, in different years, and at different places, are abundantly established. It is only circumscribing within narrower limits a similar fact, to show that a greater liability of death obtains during one of a series of months, in the same situation, and under the same kind of management.

The two previous analyses developed a larger ratio of fatality in the *Typhus*, than in the *Typhoid* cases. The reverse of this is true of the present collection. The proportion of deaths was considerably greater in the *Typhoid* group, being as 5—14 is to 6—42. This disparity shows that, for reasons unknown, there existed a stronger tendency to a fatal result in the *Typhoid* cases. Compared with the previous collections, the ratio of fatality, in the cases of the latter type, is much greater than heretofore, being nearly 36 per cent.; while, on the other hand, the ratio of fatality in the *Typhus* cases is as strikingly less, being a fraction below 14 per cent.

SECTION TWELFTH.

Examinations after death.

I shall restrict myself, in this Section, to the appearances presented in the intestinal canal, more especially the small intestine. The appearances in the latter situation are interesting in consequence of their bearing on the question of the identity or non-identity of *Typhus* and *Typhoid* fever. My reasons for taking this limited view of the post mortem examinations are, *first*, it is with reference to the question just stated that the contribution of facts is, in a special manner, desirable; and, *second*, for the reasons given in the previous Reports, the dissections did not generally embrace an inspection of all the important parts of the body. Intestinal lesions were always sought for with care, and the appearances recorded, but in most of the cases the condition of some organs was not ascertained, and, except with reference to some special point of interest like that relating to the lesions stated to be characteristic of the *Typhoid* type, an autopsy is unsatisfactory which does not embrace all the facts, negative as well as positive, which the scalpel can disclose. I have already had occasion to refer to two instances of death by sudden coma, with spasmodic Inspiration, (Section Seventh,) in which the larynx was inspected in order to ascertain whether œdema, or other morbid conditions existed in that part. Any other facts noted, aside rom the intestinal appearances, which shall appear to have any particular interest, will be mentioned; otherwise, for the sake of brevity, they will be omitted.

Of the *five* fatal cases of *Typhus*, examinations were made in *four* instances; and of the *five* fatal cases of *Typhoid*, examinations were made also in *four*. In addition to these I have had an opportunity of inspecting the intestinal canal and other parts of a patient who has died since the expiration of my term of service, the appearances taken in connection with the history of the case being peculiarly interesting. In another case, not embraced among the cases of death from fever, in which the patient, after sitting up, suffered a relapse which proved fatal, a post mortem examination was made. The appearances in this case, which was of the *Typhus* type, may also be included.

I will give a succinct statement of the results of these examinations of the cases respectively.

Typhus.

Case 1. *Death by asthenia, on the* 11*th day.* Several of the Peyerian patches developed so as to be visible, with black points, presenting the *shaven beard* appearance. No enlargement of the mesenteric glands. A patch of arborescent redness in the ileum just above the coecum. Large intestine free from disease.

Case 2. *Death by apnœa, on the* 12*th day.* A few Peyerian patches developed so as to be visible. No enlargement of mesenteric glands.

Case 3. *Death on the* 18*th day, by asthenia.* Deep capilliform redness of mucous membrane lining the lower part of the ileum. A single Peyerian patch near the coecum, and solitary glands developed so as to be visible. No enlargement of mesenteric glands.

Case 4. *Death, bg apnœa, on the* 13*th day.* Several Peyerian patches developed so as to be visible. Mesenteric glands slightly enlarged, the largest being of the size of a small pea. Two small *Tricocephali* found in the coecum.

Case 5. *Death on third day after relapse of fever, the patient having convalesced from Typhus.* An account of this case is given in *Section Eleventh.* So far as the post mortem appearances are concerned, it has as much value as any of the *Typhus* cases.

The Peyerian patches presented the *shaven beard* appearance, being developed so as to be visible. Some of the solitary glands also developed.

Mesenteric glands somewhat enlarged.

Several small ulcerations in coecum.

Typhoid.

Case 1. *Death, by apoplectic Coma, on the* 15*th day.* The Peyerian patches greatly developed, projecting two or three lines above the level of the surrounding mucous membrane. This enlargement was most marked in the patches nearest the coecum, and it progressively diminished on ascending the tube. The patches did not present any sloughing, except, to a limited extent, in the patch nearest the coecum. The mesenteric glands much enlarged, some as large as filberts.

Case 2. *Death, by asthenia, on the* 27*th day.* Peyerian patches much diseased, those nearest the coecum presenting deep excavations exposing the fibres of the muscular tunic. On ascending the tube, in some of the patches partial sloughing of the glands and morbid deposit had occurred, while in those still higher in the tube the morbid deposit remained, i. e. the patches were salient, and not ulcerated.

Mesenteric glands moderately enlarged.

Case 3. *Death, by asthenia, on the* 25*th day.* Peyerian patches extensively ulcerated, a large proportion presenting excavations, the morbid deposit and the glandular follicles having sloughed away.

Mesenteric glands much diseased.

Three tricocephali in the coecum.

Case 4. *Death on about the* 26*th day, by apnœa.* Peyerian patches developed, and those nearest the coecum presenting excavations. The solitary glands enlarged. Mesenteric glands enlarged.

Case 5. *Death fifty-three days after convalescence from Typhus, the patient having previously had Typhoid, being attacked while at the hospital with the former type shortly after convalescence from the latter.* To this very interesting case I have already had occasion to advert, (Section Sixth.) The patient entered the hospital with *Typhoid* fever, Dec. 27th. He had then been confined to the bed seven days. He was convalescent Jan. 11th, (sixteen days.) On February 7th he took to the bed with *Typhus*, and was convalescent from the latter on the 23d of February, (seventeen days.) Death occurred on the 15th of April, fifty-three days after the date of convalescence from *Typhus*, and ninety-six days from the date of convalescence from *Typhoid.* He presented successively the characteristic symptoms of each type of Continued Fever, including the eruptions. The following post mortem appearances were observed: The *lungs* contained numerous disseminated tubercles, and some masses of about the size of filberts. The tuberculous deposit was most abundant in the right lung. There were no excavations.

The surface of the *spleen* was studded with tubercles of pretty uniform size, about as large as small shot. Being reserved, in order that its external appearance might be copied, it was not examined internally.

The peritoneal surface over the liver presented a space of about the size of the palm of the hand, which was thickly covered with a granular deposit, apparently of tubercle.

The small intestine presented near the coecum an oval space presumed to be the site of a Peyerian patch, of a slate color, without any black points, not depressed, nor salient. The dark color caused the patch to be well defined, contrasting with the pale color of the surrounding mucous membrane. The mucous membrane over this patch was somewhat softened. Upward the same discoloration was observed in several patches, but less in degree. Numerous small oval excavations existed in these patches, extending below the mucous coat, not presenting a granulated or ulcerated aspect, but apparently covered with a delicate, serous-like membrane. Several similar depressions, also, existed in the mucous membrane in the neighborhood of the Peyerian patches. Some twenty or more of these excavations were counted, being less numerous and more superficial in proportion to the distance from the coecum.

The mesenteric glands were enlarged, some being as large as a small sized bean.

The appearances in the foregoing case (No. 5) are interesting from the fact that they were the remnants of the characteristic lesions of *Typhoid* *ninety-six days* after convalescence from that type of fever, the patient having, in the mean time, passed through *Typhus.*

In the two former Reports the appearances found after death were submitted without comment. The few remarks which I shall offer on the subject now, will be based on the results of the examinations in fatal cases contained in all the three collections. My remarks, as already stated, will be limited to the appearances found in the small intestine. What are the conclusions to be drawn from these data as respects the appearances which distinguish the two types from each other? It is chiefly with reference to this inquiry that I propose to review the facts which I have recorded.

The three Reports contain an account of the appearances of the small intestine in *twenty-two* cases. Of these twenty-two cases, *thirteen* were of the *Typhoid* type, *eight* were of the *Typhus* type, and in one case the patient had lately passed through both types. In each of these cases the diagnosis was made during life, and based on evidence deemed unequivocal. In nearly all the cases the distinctive symptoms embraced the peculiarities of the eruption. There can be no room for doubt that in every instance the *ante mortem* history, exclusive of the *post mortem* appearances, fully warranted the determination of type. I am particular to make this statement, for it is obvious, when we are prosecuting investigations in order to ascertain what lesions distinguish either type from the other, it is necessary to settle positively on the diagnosis in individual cases, irrespective of the lesions of which we are in search. In other words, with reference to the question which has just been propounded, the post mortem appearances should not enter into the diagnosis. On this point the reader is referred to some remarks contained in the supplement to the two first Reports, under the heading of the "*Identity of Typhus and Typhoid fever.*"

What are the morbid appearances that have been found in the *Typhus* cases? In each of the *seven* examinations in cases of this type, the Peyerian patches have been somewhat changed, the alteration consisting apparently of a *slight* degree of hypertrophy, causing their development so as to render them visible. In some instances the patches have been studded with black points, giving rise to what has been called the *shaven beard* appearance. Occasionally the solitary glands have exhibited the same kind of development, and the glandular bodies of the mesentery have been *slightly* enlarged. In no case of the *Typhus* type have the appearances exceeded those just described, but more or less of these appearances have been uniformly observed. Both these facts are important to be borne in mind. These results prove sufficiently the incorrectness of the statement that the Peyerian patches and mesenteric glands are entirely unaffected in *Typhus*. So far as these results go, they show, on the contrary, that the Peyerian follicles are uniformly affected, but they contain proof only of a certain amount of morbid change, consisting, judged by the gross appearances, simply of a slight degree of abnormal development or hypertrophy.

On the other hand, what are the morbid appearances in the *Typhoid* cases? In each of the instances of this type the Peyerian patches exhibited a *notable degree* of alteration, the change not consisting in merely a slight development, but in great enlargement, causing the patches to project several lines above the level of the surrounding mucous membrane, or in excavations involving more or less destruction of the mucous coat and follicles, the surface of these excavations sometimes having a granular, ulcerated aspect, and in other instances covered by a thin, transparent serous-like tissue. Generally, the solitary glands were also the seat of similar excavations, or of great enlargement. The mesenteric glands, also, were invariably increased in size to a much greater extent than in the *Typhoid* cases, in some instances being quite large. To be more precise with respect to the *Typhoid* type, in *three* of the *thirteen* cases the Peyerian patches were notably enlarged, without excavations, and in the remaining *ten* cases the latter, with more or less enlargement, existed.

These appearances show, in the *Typhoid* cases, a morbid deposit in the Peyerian patches taking place early in the disease in considerable abundance, and in the *Typhus* cases simply a tumefaction. They show, at a more advanced stage of the *Typhoid* type, a sloughing of the enlarged glands with the morbid deposit and the mucous covering, leaving ulcerated excavations extending to the muscular tunic, sometimes leading to rupture and perforation; and, at a later stage, more or less advance toward cicatrization and filling up of these excavations; while, in the *Typhus* cases, in no instance were these processes of ulceration and sloughing apparent.

Although, therefore, the Peyerian patches are not wholly unaffected in *Typhus*, the changes, when compared with those that obtain in *Typhoid*, are quite insignificant. The contrast, as remarked in another place, is scarcely less striking than if the follicles in *Typhus* had remained invisible. The difference in the appearances is as great as that, for example, which exists, on the external surface of the body, between the efflorescence of measles, and the pustular eruption of small pox. The force of the difference in its bearing on the question of the identity or non-identity of the two types, cannot be considered to be much impaired by the fact that the Peyerian patches are frequently, if not generally changed in a slight degree in *Typhus*.

It seems to me more important to dwell on these points with some emphasis, because an idea appears to be very generally entertained that if the Peyerian patches are found to be affected in ever so slight degree in *Typhus*, its non-identity with *Typhoid* is disproved. But this conclusion assuredly does not follow, if it be true that the affection of these parts in *Typhoid* is quite different in character, as well as degree, from that in *Typhus*. Moreover, observers are likely to be confused, and distrustful in verifying the differential diagnosis by the intestinal appearances, in consequence of the erroneous idea just mentioned.

As respects the intestinal lesions of *Typhoid* fever, several points of interest remain to be studied. The nature of the *typhous* material, or deposit, does not appear to have been ascertained. It has been compared to the tuberculous deposit, and it appears to pass through changes somewhat analogous to the evacuation of tuberculous material into the bronchial tubes.

The Peyerian patches are frequently destroyed by the sloughing process. Are they afterward reproduced? What is the condition of these parts at a period considerably remote from the time of convalescence, after the processes of restoration are completed? Do the Peyerian patches *invariably* present the notable degree of alteration found in my examinations in *Typhoid*, and, in what proportion of cases, are they wholly unaffected in *Typhus?* These, and other inquiries which suggest themselves in this connection, afford interesting fields of research.

A point of interest, in conclusion, relates to the history of the eruption in the cases in which examinations were made after death. Directing attention to the cases entering into the present collection, an eruption existed in *two* of the four cases of *Typhus*, and in *all* the four cases of *Typhoid.* In one of the *Typhus* cases the eruption had mixed characters, i. e., a combination of the *Typhus* and *Typhoid* eruption. In one of the *Typhoid* cases, only *four* "rose spots" were counted, and in another case only *five.* The two last mentioned cases show that the intestinal lesions bear no relation of proportion to the abundance of the eruption.

SECTION THIRTEENTH.

Treatment.

The cases in this collection were treated with greater simplicity, but, in some respects, more efficiently than those heretofore analyzed. The first object in the management, of course, was to direct those measures which, in the opinion of the reporter, would most conduce to the welfare of the patients, and afford the best chance of recovery. It is quite superfluous to add, that this object must ever be paramount to every other in the minds of conscientious practitioners. Objects, however, of a scientific character, may properly, and in fact should, whenever practicable, be superadded — objects relating to self improvement, and the collection of facts by which, it is to be hoped, science may be enriched, and the resources of our art enlarged. In the latter point of view, two ideas were prominent in my mind during the time the cases were in progress. One of these ideas was to prescribe medicinal remedies only when clear and definite therapeutical indications were recognized, adopting, as heretofore, the expectant method. Another idea was to meet the indications which appeared to present themselves, directly and efficiently, employing for this end the fewest and simplest means adequate thereto. These ideas, it may be said, so far from possessing any novelty, are those upon which a rational practice is usually based. Without stopping to engage in any discussion on this topic, I will merely remark, that reflection and observation, as it seems to me, must convince us that every one is open to more or less self-deception on this score. So difficult is it to repress the tendency to resort to therapeutical interference, that there are few, if any, acute affections concerning which it is not still a desideratum to know what would be the consequence of permitting them to run their course uninfluenced by medication. All must admit the importance of this knowledge as a point of departure for rational principles of management. I have no reluctance to confess a desire to observe the progress of Continued Fever divested of all extrinsic influences save those which, considering my views of what was due to the interests of the patient, I should not be justified in withholding. The same tendency which stands in the way of refraining from all medication, even when it might be better for the patient, as well as more conducive to scientific knowledge, also leads to the multiplication of different remedies for the attainment of a common end. The unfavorable effect of the latter upon medical observations is two fold. It is obviously difficult to assign to each remedy its proportionate degree of efficacy when several are employed conjunctively. This is one evil. Another is, that in distributing our expectations of benefit among a variety of means, we are apt to attach undue importance to some, or to their collective operation, and thus employ too sparingly those which are the most efficient, and upon which it were better that the main reliance should be placed. Having aimed to have these considerations exert, practically, their full effect, the treatment of these cases, as already remarked, was even more simple than that pursued during the two previous years; and I shall be better able to submit a summary of the facts pertaining to this, certainly not the least interesting or important part of the history. In endeavoring to give the reader an account of the kind and amount of medication practiced, the most convenient method will be to consider the different remedies employed, under separate heads. I will, therefore, examine the records of the cases with reference to the extent to which different articles of the materia medica were prescribed.

In two cases, both of the *Typhus* type, no medicinal remedies whatever, were prescribed. The disease passed through its career favorably, sanitary measures being alone directed. In all other instances some remedies were employed.

Laxatives. Laxatives were prescribed in several cases in which no dejection had taken place for several successive days. In no instance was an active cathartic administered. The laxative measures consisted either of castor oil taken by the mouth in the dose of half an ounce, or in simple enemas. The oil was prescribed, I find, in *ten* cases. *Nine* of these ten cases were of the *Typhus* type. In every case but one, oil was given once only during the course of the disease. In the case furnishing the single exception to this statement, the oil was repeated on the following day. It was given in nearly every instance early in the disease, usually at the time the patients entered the hospital.

A single enema was prescribed in *three* cases, all of the *Typhus* type.

In one case in which castor oil was given, and in one of the cases in which an enema was resorted to, the dejections which followed were so frequent as to call for remedies to restrain them, which, in both instances, at once succeeded. The same was true of another case in which the patient had taken some cathartic just before entering the hospital.

In *two* instances (*Typhus*) no medicinal remedy was prescribed in addition to a single dose of oil; and in *one* case a simple enema constituted the sole treatment.

Anodynes. Anodynes were employed in a few cases to restrain diarrhœa, and the undue operation of laxative remedies. The tincture of opium was used for this end, taken either by the mouth, or by enema. It was prescribed in *five* cases of *Typhus*, and in *eight* cases of *Typhoid.* The proportion of the instances in the latter type, it will be perceived, is very considerably largest. In all these cases it was employed to a very limited extent, and frequently only once during the course of the disease.

In treating cases of fever, heretofore, I had been accustomed, very generally, to prescribe opium, or morphia, with a view to relieve mental aberration, and promote sleep. I have supposed that an anodyne influence was salutary even when vigilance or delirium were not prominent symptoms. In this collection of cases, however, I resorted to remedies of this class, except to restrain too frequent dejections, in but a very few instances. Morphia was prescribed in only *two* cases of *Typhus*, and in one of these it was given to allay cough. In *one* case of *Typhoid*, Dover's powder entered into the treatment.

My sense of the necessity of Anodynes, save for the object first stated, was lessened by the observation of cases in which they were omitted. Had it been otherwise, they would have been given more frequently.

Astringents. I gave the *tannic acid* in *one* case of *Typhoid* in which diarrhœa called for restraining measures. This was the only instance in which any remedies of the astringent class were employed.

Sedatives. The only articles employed which will fall under this class are *tartarized antimony and potassa*, and *camphor*. The former was prescribed in *three* cases of *Typhus*, and in *one* case of *Typhoid.* In the *Typhus* cases it was given to relieve delirium, in doses of gr. 1–16. In the

Typhoid case it was given with reference to pneumonitis which existed as a complication. In one of the *Typhus* cases the antimony constituted the sole medicinal treatment.

Camphor was given in *three* cases of *Typhus* for ataxic symptoms, and in no case of *Typhoid.*

Ammonia. The carbonate of ammonia was given whenever there was a marked failure in the forces carrying on the circulation. It was prescribed in all the cases ending fatally by asthenia. It entered into the treatment of *six* cases of *Typhus*, and *four* cases of *Typhoid.*

Quinia. Quinia was prescribed in doses of *three* grains, three times daily, and continued for several days in *four* cases of *Typhus.* In each of these cases it was given from the commencement of the febrile career. It was given in *one* case of *Typhoid.*

Huxam's tincture was prescribed in *one* case.

Spiritus ether nitrosus. This remedy was given in *two* instances, once for some difficulty in urination, and in the other case the indication does not appear in the history.

Vesication. Blisters to the nape of the neck were resorted to whenever spasmodic inspiration was observed, or a tendency to coma. It entered into the treatment of all cases which ended fatally by apnœa. The employment of blisters was limited to the above indication, save that in one case they were applied behind the ears for external otitis. They were applied to the neck in *nine* cases of *Typhus*, and in *four* cases of *Typhoid.*

Sinapisms and stimulating liniments. These were occasionally employed in cases complicated with pneumonitis, and when coma existed, or was threatened.

Diffusible stimulus. The only form of diffusible stimulus employed, save in one or two instances, was *brandy.* This remedy entered into the management of the great majority of the cases of both types. It was omitted in but *five* cases of *Typhus,* and *two* of *Typhoid.* In these cases the disease was mild. Two of them were those which received no medicinal treatment. In one the treatment consisted only of a single enema, and in another of antimony in doses of a sixteenth of a grain.

In several of the *Typhus* cases (in all *nine*) brandy constituted the sole remedial agent employed.

The mode of administration, in all save two cases in which milk punch and egg nog were given, was with cold or warm water, from two to three parts of the latter, and, occasionally, the addition of sugar. The quantity given at a dose was generally half an ounce, or a tablespoonful. In some instances this quantity was increased to an ounce. The dose was repeated at intervals varying from half an hour to four hours. The shortness of the intervals corresponded with the apparent urgency of the indications, and the apparent effect. The frequency with which the doses were repeated varied very considerably in individual cases, and at different periods of the febrile career in the same case. I commenced its use, in a large proportion of the cases, early in the disease, frequently at the time the patients first came under observation, and it was usually continued pretty steadily throughout the disease.

Prostration, coolness of the surface, feebleness, and, more especially, notable frequency of the pulse were regarded as indicating its free administration. But it was given in many cases in which these symptoms were not particularly prominent, the object being to forestall their occurrence by sustaining the vital forces.

I have thus given a brief statement of the medicinal treatment. The dietetical and sanitary management was deemed not less important than that pertaining to the exhibition of remedies. In every instance nutriment was systematically administered; the forms being the same as heretofore, viz., essence of beef and milk porridge. These articles of nourishment were given at short intervals during the course of the disease, without waiting for an expression of, or consulting the wishes of the patients, and sometimes against their inclinations. Attention to cleanliness, ablutions, and ventilation, were attended to so far as circumstances permitted. Owing to the hospital being more crowded than hitherto, the sanitary conditions were perhaps somewhat less favorable than during the previous years. The larger number of patients also rendered it more difficult to bestow always the same vigilant attention.

I have not mentioned any efforts to cut short the disease. The only measures resorted to for this end was the *wet sheet*, which was applied in *two* cases of the *Typhoid* type. In one of these cases it was applied on the *third* day after admission, and the *fifth* of the febrile career. The fever continued, convalescence being pronounced on the *nineteenth* day.

In the other case it was resorted to on the second day after admission, and the fifth of the febrile career. The progress of the disease was unaffected, the patient being convalescent on the *sixteenth* day. In this case a relapse of fever occurred a few days after the date of convalescence.

It is at once obvious that in presenting the foregoing summary of the treatment pursued in this collection of cases, the object is not to furnish any proof of the effects, either immediate or remote, apparently due to each of the different measures in the cases individually. In order to form any estimate of these results it would be necessary to consider the details of the treatment in each case, together with the symptoms from day to day during the course of the disease. In other words, the histories of all the cases should be given at length. The enumerations that have been given only afford a *coup d'oeil* of the treatment which the cases received collectively, the remedies employed being so few, that, without occupying much space, it has been practicable to present a statement of facts which it is presumed will be rather more satisfactory than mere general statements.

The reader will perceive that the medicinal remedy upon which most dependence was placed was brandy. In this, with the administration of nutriment, consisted most of whatever efficiency belongs to the management. The other remedies, for the most part, were secondary in importance; and it is more than probable that the treatment might have been more uniformly restricted to the use of diffusible stimulus without affecting materially the results. That is to say, some of the remedies which were prescribed in a small proportion of cases, did not possess enough potency for much importance to be attached to them.

What conclusions are to be drawn from the management of these cases? I am half disposed to leave this question wholly with the reader. I shall devote to it but a very few remarks. We are to regard this collection of cases as exemplifying, therapeutically, the treatment of *Typhus* and *Typhoid* fever mainly by stimulants and nourishment. The rate of mortality certainly was not large. It is probably below the average of cases of the same description under analogous circumstances, irrespective of remedies, or under different plans of management. I am not disposed, however, to deduce from this fact any inferences as to the positive merits of the mode of treatment. It is well known that these forms of fever exhibit at different times and places widely different tendencies to a fatal result. Statistics may be referred to, showing a small rate of mortality, in which stimulants and a nutritious diet did not form a prominent feature of management. All that can be claimed in behalf of the treatment on the ground of the small fatality is, that it did not exert an unfavorable effect. In making this admission I would not be understood to mean that I attach only a negative value to the measures pursued. I cannot but entertain the conviction that these measures did exert more or less real efficacy. If I had thought otherwise, I should assuredly have withheld them to a greater or less extent. Attaching to them considerable importance, I could not conscientiously deprive the patients of the advantage which I supposed was to be therefrom derived. This is, however, an *opinion*, which is quite another thing than a truth demonstratively or logically established.

The probable influence on the rate of mortality in a collection of cases is, however, not the only, nor the most reliable source of information respecting the efficacy of remedies. We estimate their influence, in the formation of our opinions by experience, by studying their immediate effects in individual cases. This kind of observation has led me to attach considerable importance to the employment of diffusible stimulants, in conjunction with alimentation, in cases of fever. I cannot, as it seems to me, be deceived in the fact that the symptoms are frequently improved thereby, and that the condition of patients frequently deteriorates when these measures are withheld. I have in several instances in this, as in the collection of cases before recorded, observed the pulse to fall in frequency, the mind become more clear, etc., after stimulants, with nutriment, have been administered, or the quantity been increased, when it was hardly conceivable that this connection of events was one of coincidence merely. I have sometimes withheld these measures, or diminished their use, for a short time, in order to watch the result, and found their usefulness apparently verified in that way. In one of the *Typhus* cases in this collection, presenting the greatest degree of gravity, the pulse being nearly or quite 140 per minute for several successive days, I was led to try this experiment under the suspicion that the great acceleration of the pulse might possibly be due, in a measure, to over stimulation. In that instance, after the discontinuance of an ounce of brandy every half hour, for a few hours, the pulse rose from 140 to 150 and again fell to 140 on resuming the stimulus in the doses previously given. The patient finally recovered. It was frequently remarked that the pulse was more frequent, and other symptoms more unfavorable in the morning, when, owing to the greater difficulty of administering stimulants and nutriment with the same regularity during the night as during the day time, these measures had been less efficiently carried out; and I cannot but think that the happy issue of some cases was due to the vigilance with which the patients were watched at night as well as day, the quantity of stimulus being graduated carefully by the immediate effect on the pulse and other symptoms.

With respect to the uniformity with which these sustaining measures should be pursued in cases of fever, and, in this point of view, the degree of importance which belongs to them, my impressions are not so definite. I am by no means prepared to assert that they could not have been dispensed with in some cases, or employed less freely, without compromising the safety and welfare of the patients. Continued observations relative to these, and other points in therapeutics, are desirable. A combination of *negative* deductions from the analyses of different collections of cases, may, in the end, settle the principles which should govern the treatment of Continued Fever more *positively* than comports with our present knowledge of the subject.

SECTION FOURTEENTH.

Cases of Doubtful Type.

In the foregoing Sections I have made no reference to the facts contained in the histories of the cases in which the type of the disease was not determined. I have thought it preferable in concluding this Report to devote to the cases of *doubtful type* a distinct Section. They will require but a brief consideration. I shall examine them only with reference to the subject of *diagnosis.* It is in this point of view chiefly that they possess interest. The question naturally arises—'Is it true that the type of a certain portion of the cases in each collection is indeterminate?' If it be difficult or impossible to assign to 8–64 or $\frac{1}{8}$ of the cases falling under our observation their proper situation in either the *Typhus* or *Typhoid* groups, does not, it may be asked, this fact militate against the doctrine that Continued Fever is resolvable into these two forms? I propose to analyze the cases of *doubtful type*, in this collection, with reference to these inquiries. Let us see what are the facts pertaining to the distinctive diagnosis in the cases severally. Confining the examination to the points which distinguish the two types from each other, it will not occupy much space to present a summary of the history of each case. This I will proceed to do, appending to each case a few remarks, and afterward offering some general conclusions.

Case I. Thomas Daily, aged 11 years, Irish, recently arrived in this country. Entered hospital in the month of November. The attack was abrupt, having no period of access.

There were no manifestations of delirium.

The bowels were at first constipated, no dejection occurring for three successive days; afterward the bowels were loose, but diarrhœa was not a prominent symptom.

There was moderate meteorism, and considerable abdominal tenderness.

No eruption.

No epistaxis.

The maximum of the frequency of the pulse was 144; the mean frequency a fraction over 115.

Capillary congestion was moderate. The duration of the febrile career was about twelve days.

Remarks. From the foregoing assemblage of symptoms the type of the disease is presumed to have been *Typhoid.* This opinion is mainly predicated on the abdominal symptoms, which, although not present from the first, nor prominent at any time, were yet sufficiently marked. The abruptness of attack is unusual, but with respect to this, as well as other points, it is not improbable that a collection of cases of the disease occurring in young subjects would show some variation from the laws obtaining in cases of adults.

CASE II. — Mary Daily, sister of No. 1, aged about eight years. Admitted in November. Attack abrupt, took at once to the bed. No manifestations of delirium. Deafness was marked.

Mild diarrhœa from the first, or, rather, looseness of the bowels.

Meteorism and tenderness are not mentioned.

Maximum of frequency of pulse, 152; mean frequency, 107.

Moderate capillary congestion during the early part of the career.

Epistaxis occurred on the third day.

Duration, fourteen days.

Remarks. There can scarcely be a question respecting the type in this case. It was doubtless *Typhoid.* The evidence is stronger than in case No. 1, and this being so, the fact of the relationship of the patients adds to the evidence in the first case. The history is defective in not containing statements relative to tympanites and tenderness. This was the reason, chiefly, of the case being excluded from the *Typhoid* group.

CASE III.—Henry Nigelab, German, aged 40. Admitted in December. Been in America two years, and in Buffalo five weeks.

Attack was abrupt.

Delirium occurred on the third day, consisting in incoherent talking, and efforts to get out of bed. Eyes suffused. Bowels constipated, two dejections only occurring in the space of eight days. No abdominal tenderness, nor tympanites.

An indistinct eruption noted on one day.

Maximum of pulse, 128; mean frequency, 107.

Moderate capillary congestion. Epistaxis (moderate) on the fourth day.

Duration, eight days.

Remarks. The type of the disease was unquestionably *Typhus.* The absence of abdominal tenderness and meteorism, the constipation, the sudden attack, the age of the patient, the early delirium, the mean frequency of the pulse, constitute conclusive proof of the correctness of this opinion; and had the details of the history been studied as fully at the preliminary examination, when the distribution of the cases were made, as now, the case would have been included in the *Typhus* group.

CASE IV.—Aaron Young, English, aged 23. Admitted January. Been in this country but five days, and stated that there was fever on board the vessel in which he came over. He entered January 11th, with cough, debility, and febrile movement. He kept the bed several days, when he began to sit up, and was supposed to be convalescing from an attack of ephemeral fever. The chest was not explored at that time, but subsequently the existence of tuberculosis was determined. He was probably laboring under incipient phthisis when he entered.

On the 16th of February, (thirty-six days after date of admission) he was attacked with symptoms of fever.

He took to the bed after an access of *two* days duration.

Delirium was manifested on the third day, consisting of incoherency and efforts to get out of bed.

The bowels were rather loose, i. e. on some days two dejections occurred during the twenty-four hours.

There was moderate tympanites, but no abdominal tenderness.

On the second day after taking to the bed a copious eruption appeared, consisting of *maculæ*, dusky, not disappearing on pressure, intermingled with which were *rose spots.*

Capillary congestion moderate.

Maximum of pulse, 108; mean frequency, 95.

Slight epistaxis on the fourth day.

Duration, thirteen days.

Remarks. The looseness of bowels, together with the mixed eruption led to the rejection of this case, but that it was a case of *Typhus* hardly admits of doubt. This is shown by the abrupt attack, the short duration, the absence of abdominal tenderness, the early manifestations of delirium, the early appearance of the eruption, its copiousness, extending to extremities as well as over the body, and the probability of the disease having been contracted by contagion in the hospital ward.

CASE V.—John Jany, Irish, aged 22. Admitted in February.

Been in this country ten days.

Duration of access not determined.

No manifestations of delirium.

One dejection daily during the career of the disease, save that on one day there were two.

No tympanites, nor abdominal tenderness.

On the fourth day there was no eruption. On the fifth, sixth, and seventh days the daily record of symptoms was not made. On the ninth day there were three *rose spots* which remained for several days.

The maximum of pulse was 90; mean frequency, a fraction over 75.

Moderate capillary congestion.

Duration of febrile career, fourteen days.

Remarks. The interruption in the daily records, and consequent imperfection of the history, was the chief reason for excluding this case. It was a case of *Typhoid* without doubt, of a very mild grade.

Case VI. — John Welch, aged 25, admitted in March.

Been in this country five years.

Entered on the *sixth* day after taking to the bed.

Access of eight days duration.

Slight manifestations of delirium, consisting only in incoherency at night.

Mild diarrhœa during the whole of the febrile career.

Moderate meteorism and slight abdominal tenderness.

Presented at the time of his admission an eruption which is described as dusky, not elevated, and the redness not disappearing on pressure. The same characters are recorded the following day. On the next day it is simply noted that the eruption remains. On the next day several *rose spots* were observed, disappearing on pressure.

Maximum of pulse, 120; mean frequency, a fraction over 104.

Moderate capillary congestion.

Epistaxis occurred early in the disease.

Duration, eighteen days.

Remarks. The variation in the characters of the eruption in this case renders the diagnosis doubtful. The patient, it will be perceived, did not enter until the sixth day, so that the time of the development of the eruption, and the character which it at first exhibited are not ascertained. Aside from the eruption, the symptoms clearly point to *Typhoid.* The long duration of the access, and the duration of the febrile career; the abdominal symptoms, absence of delirium, and the occurrence of epistaxis, would render the discrimination sufficiently easy, were it not for the mixed characters of the eruption.

This, it will be observed, is the first of the cases of *Doubtful type* in which the facts pertaining to the history really occasion much hesitation as to the diagnosis.

Case VII. — Charles Madden, Irish, aged 27, admitted in March. He entered hospital three weeks before being attacked with fever, with some trifling ailment which was not closely investigated. He was able to be up and about until attacked with fever.

It is not stated whether he had recently arrived in this country.

Access of four days duration.

Slight manifestations of delirium on the second night after taking to bed.

Diarrhœa, the dejections being frequent, occurred on the second and third days, but did not afterward continue. Previously there was constipation. No meteorism, nor abdominal tenderness.

An eruption appeared on the second day consisting of three or four *rose spots*. The next day there was a copious eruption, dusky, not disappearing on pressure, and, intermingled, a few *rose·spots*.

Maximum of pulse, 114; mean frequency, 96.

Moderate capillary congestion.

Duration of disease, thirteen days.

Remarks. The *rose spots*, and the diarrhœa, give rise to some doubt as to the diagnosis in this case. Aside from these, the evidence of *Typhus* predominates. The absence of tympanites and tenderness over the abdomen; the early development of delirium; the appearance of the eruption early in the disease and its copiousness; the short duration of the disease and the probability of its having been contracted in the hospital, are in favor of the *Typhus* type.

Case VIII. — George Gaylord, aged 25, English, admitted in January.

Been in America ten months, and in Buffalo eight.

A brother of this patient entered December 12th, with *Typhus*, and his case is included in the Typhus group.

Admitted on the *fifth* day after taking to the bed.

Duration of access, *three* days.

Slight incoherency from the time of admission.

Bowels constipated until the eighteenth day, when they were slightly loose.

Slight tympanites noted on one day only.

No abdominal tenderness.

Eruption abundant, presenting mixed characters. It is thus described: "Eruption copious over the body and extremities, mostly consisting of *maculæ*, not disappearing on firm pressure, rather dusky. Intermingled with these a sparse eruption of *rose spots*, larger in size, elevated, and the redness readily disappearing on pressure."

The eruption was present when admitted, and had been already observed for two days, making its first appearance as early as the third day.

Maximum of pulse, 124; mean frequency, a fraction over 111.

Moderate capillary congestion.

Slight epistaxis on the fourth day.

Duration of the disease twenty-three days.

Convalescence was retarded by pneumonitis.

Remarks. There is but little room for doubt in this case as to the *type.* What doubt exists is occasioned by the mixed characters of the eruption. Admitting that the eruption does present occasionally characters more or less mixed, without necessarily compromising the claims of such cases to be considered either *Typhus* or *Typhoid*, I should have been warranted, as it appears to me, in including this case in the former group. The early development of the eruption, its copiousness and extent; the short duration of the access; the mean frequency of the pulse, and the fact that a brother, shortly before, with whom he had been associated, was admitted with clearly marked *Typhus*, render the diagnosis almost, if not quite positive.

It is sufficiently apparent from the circumstances relating to the histories of these cases, that the type of the disease, generally, was not very doubtful. In fact there were but two cases (Nos. 6 and 7,) in which much uncertainty could be considered to rest upon the diagnosis. That these few cases were included in the class of *Doubtful type*, does not, therefore, show that difficulty in practically discriminating between the two types, which the reader, without these details, might naturally have been led to infer. Their exclusion from the *Typhus* and *Typhoid* groups, was owing to the care not to include in either group a single case in which the type was in the least degree doubtful, it being deemed far better to be over cautious in this respect, than to run any risk of error. So far as my observations go, the principles of diagnosis briefly presented in the Supplement to the Second Report, admit of a ready and positive application in all but a very small proportion of instances. The fact must be considered to have considerable significance in connection with the question as to the identity of *Typhus*, and *Typhoid* fever. At the same time, the fact is not to be overlooked that we do find, in a certain proportion of cases, a combination, to a greater or less extent, of the symptoms distinctive of either type. The latter fact applies to the eruption, as well as other events belonging to the natural history of the two forms of fever. In view of this fact, it may seem, in the minds of some, to be a rational conclusion that the two forms of Continued Fever are not so distinct but that they may be blended, developing a kind of hybrid disease, which cannot properly be considered to be either *Typhus* or *Typhoid*. This certainly opens a very interesting point of inquiry. It cannot, however, be prosecuted, with any expectation of coming to a satisfactory conclusion, by means of speculative reasoning, and my observations relative to the subject do not afford data adequate to any logical deductions.

Note. It is proper to state that the histories of the cases upon which the foregoing Report is based, were, for the most part, not recorded by my own hand, but by Mr. J. Lewis Smith, resident medical student at the hospital, for whose faithful services I desire to express my obligations. The records were made under my daily direction and supervision.

MORBID APPEARANCES AFTER DEATH,

(EXCLUSIVE OF INTESTINAL LESIONS,)

DISTINCTIVE OF THE TYPHOID AND TYPHUS TYPES OF CONTINUED FEVER.

The investigations upon which were based my clinical Reports on Continued Fever relate chiefly to events belonging to the *living* history of the disease, that is to say, to the symptoms and circumstances developed during the continuance of life. In the fatal cases, inquiries concerning the morbid effects impressed upon the organism, were generally prosecuted but to a limited extent, attention frequently being directed only to the presence or absence of the intestinal lesions regarded as characteristic of the Typhoid type. It is needless to say that the appearances after death form an important portion of the natural history of any disease; and with reference to these, as well as the phenomena manifested during life, it is important to examine *all* the organs of the body, noting the absence, as well as presence of morbid changes. The post mortem history, like that pertaining to the phenomena of life, is to be based on analyses of recorded observations, sufficient in number, and made at different periods and places. Studied in this way, the morbid anatomy of Continued Fever offers a field for inquiry, as yet by no means exhausted. The researches of Louis embrace an account of the appearances in a pretty large number of cases of *Typhoid* fever; and within the past few years, facts have been contributed by various observers relative to the changes distinguishing this from the *Typhus* type. A point of absorbing interest, however, has been the presence of intestinal lesions in *Typhoid,* and their absence, or relative insignificance in *Typhus.* Attention appears to have been in a great degree engrossed by these lesions, to the exclusion of a more extended comparison of the two types embracing the appearances found in other organs.

Dr. William Jenner, Prof. of pathological anatomy in University College, London, has lately contributed some observations on this subject which are highly interesting and valuable. They are contained in a series of articles communicated for the *Monthly Journal of Medical Science*, thus entitled:— "On Typhoid and Typhus fevers — an attempt to determine the question of their identity or non-identity, by an analysis of the symptoms, and of the appearances found after death in sixty-six fatal cases of Continued Fever, observed at the London fever hospital from Jan., 1847, to Feb., 1849." It will be perceived by the foregoing title that the articles embrace an analysis of the symptoms, as well as post mortem appearances. The course pursued by Dr. J. was to select only fatal cases, and to determine the type by the presence or absence of the intestinal typhoid lesions. Having in this way arranged them into two groups, he then proceeded to analyze the symptoms and appearances after death in both groups, and compare the results. The articles by Dr. Jenner have fallen under my notice since my third Report was written. The data for comparison of the morbid appearances in the two types (typhus and typhoid) are fuller and more complete than, so far as I know, have been contributed by any other observer; and in order to supply a manifest deficiency in the analyses which I have made, I shall take the liberty of appropriating, for the benefit of those who have honored my Reports with a perusal, a summary of the results of his investigations. The synopsis which follows is copied from the Journal already mentioned, and is given as it is there presented by the author. The intestinal lesions are excluded. The propriety of this is apparent when it is considered that upon the presence or absence of these lesions the post mortem diagnosis was based. Moreover, as respects these lesions, the fatal cases in my collections were studied with considerable care.

Synopsis of morbid appearances distinctive of Typhus and Typhoid fever, based on an analysis of sixty-six cases.

"*Cadaveric rigidity,* ceased much more quickly in subjects dead from typhus than from typhoid fever."

"*Discoloration of the walls of the abdomen and of the skin covering the larger veins,* was much more frequently present in those dead from typhus than typhoid fever."

Emaciation had made greater progress in the typhoid than in the typhus subjects."

"*Spots.* The spots observed during the progress of the cases of typhus fever continued after death; no trace of the spots visible during life could be detected after death from typhoid fever."

"*Head.* After typhoid fever, the pia mater and arachnoid separated from the convolutions with abnormal facility in one only of nine cases examined with reference to this point. The vessels of the pia mater were abnormally filled with blood in one-third of the cases, but intensely congested in one only of the fifteen cases; the cerebral substance was congested in one-seventh of the cases. After typhus fever, the pia mater and arachnoid separated with abnormal facility in nine of eleven cases of which notes on the point were made. The vessels of the pia mater were congested in nearly half, and intensely congested in one-fifth of the whole of the cases; while the cerebral substance itself was abnormally congested in half."

"*Hemorrhage into the cavity of the arachnoid*, which was not found in a single case of typhoid fever, had occurred before death in one-eighth of the cases of typhus fever." "The amount of sesosity found within the cranial cavity was decidedly greater after typhus than typhoid fever."

"*Pharynx.* After typhoid fever, this organ was found ulcerated in one-third of the cases. After typhus fever, ulceration of the pharynx was not detected in a single case."

"*Larynx.* Ulceration of the larynx was found in one of fifteen subjects dead from typhoid fever; in one of twenty-six from typhus fever."

"*Œsophagus.* After typhoid fever, ulcerated in one of fifteen cases in which it was examined. After typhus fever, the œsophagus was free from ulceration in all the twenty-four cases in which it was examined."

"The epithelium separated from the œsophagus spontaneously at an earlier period after death from the latter, than the former disease."

"*Stomach.* In none of the fifteen cases examined after death from typhoid fever was the mucous membrane of the stomach softened throughout the whole extent; in no case did softening of the cardial extremity approach perforation. In four of thirty-seven cases of typhus fever the whole mucous membrane of the stomach was softened; and in four others there was such extreme softening of the whole of the coats of the great *cul de sac*, that they were perforated by the slightest violence.

"*Small Intestines and Mesenteric Glands.* The presence or absence of lesion of these organs was the ground on which the cases of typhoid and typhus fever here analyzed were divided from each other,—consequently they were invariably diseased in the one, and sound in the other."

"*Large Intestines.* After death from typhoid fever, the mucous membrane of the large intestines was found ulcerated in rather more than a third of twenty cases. In no instance after death from typhus fever.

"*Peritoneum.* As peritonitis was in typhoid fever secondary to, and dependent on the entero-mesenteric disease, it may here be excluded from consideration."

"*Spleen.* This organ was enlarged in all the cases of typhoid fever—softened in one-third of the cases only. Before the age of 50, it was as large after typhus as typhoid fever; after that age, it was decidedly smaller in the former than in the latter affection. After the age of 50, it was as soft in typhus as in typhoid fever; before that age it was frequently softened."

"*Gall Bladder.* There was ulceration of the lining membrane of the gall bladder in one of fourteen cases of typhoid fever; in none of thirty-one cases of typhus fever. In the latter disease the bile was much thicker, and of a darker green color than in the former."

"*Liver, Pacreas, Kidneys.* These organs were more flabby in the cases of typhus than in those of typhoid fever."

"*Urinary Bladder.* This viscus was ulcerated in one of the cases of typhoid fever—in none of the cases of typhus fever."

"*Pericardium.* This cavity contained a small amount of yellowish transparent serosity in all the cases of typhoid fever examined. The contained serosity was red, from transudation of a solution of hæmatosin, in five of thirty-one cases of typhus fever, in which the pericardium was examined before the termination of the fever.*

"*Heart.* The muscular tissue of this organ was much more frequently and decidedly flabby, and its lining membrane was much more frequently and deeply stained of a dark red color, in the cases of typhus fever, than in those of typhoid fever."

"*Lungs.* Granular and non-granular lobular consolidation were very frequent in the subjects dead from typhoid fever—rare in those dead from typhus fever. The reverse was the fact with reference to congestion of the most depending part of the lung."

"*Pleura.* Recent lymph or turbid serosity was found in six of fifteen cases of typhoid fever—i. e., between half and one-third, or in the proportion of forty per cent. The same lesions not much less in amount were found in two only of thirty-six cases of typhus fever—i. e. one-sixteenth, or in the proportion of 55 per cent."

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* There is evidently a mistake in the last sentence.

The foregoing is copied from the Monthly Journal of Medical Science for April, 1850.

Dr. J. adds, after the foregoing parallel of pathological appearances, as follows: "The particulars here briefly recapitulated, and still more those fully detailed in the foregoing papers, appear to me to prove indisputably that the symptoms, course, duration, anatomico-pathological lesions, and the tendency to cadaveric changes, are different in typhoid fever from what they are in typhus fever."

RELAPSING FEVER.

In the distribution of cases for analytical investigation hitherto, I have practically assumed that they were either of the *Typhus* or *Typhoid* type. Are all the varieties or species of Continued Fever embraced in these two forms of the disease? This is an interesting and important question which perhaps cannot, in the present state of knowledge, be answered positively.

The distinctive nosological features of *Typhus* and *Typhoid* fever have been but recently established, and it would not be surprising if further investigation should lead to other subdivisions of continued fever, showing that we have been accustomed to include in one or both of these forms, affections which should be considered distinct.

The opinion has been advanced by some British writers that already there are sufficient grounds for such a subdivision. A form of fever observed at different epochs in Edinburg and London is described as possessing, in common, characters differing from those of *Typhus* and *Typhoid fever* sufficiently to constitute it a distinct affection, which has been named, *Relapsing fever.* The following extract from an able article in the *British and Foreign Medico-Chirurgical Review*, No. for July, 1851, furnishes a brief historical notice of the occurrence at different times and places of the kind of fever which has received this title:

*"In the early part of 1843, a febrile disease appeared in Edinburgh and Leith, so different in its course, in its symptoms, and in the amount of its mortality, from any Continued Fever which had been recently observed there, that it was at once and unhesitatingly declared to be a peculiar and new disease. It was soon known that the same disease had appeared in Glasgow a

month or two prior to its outbreak in Edinburgh; it was more or less prevalent also in Dundee and in other large towns in Scotland, whether it appeared in London or in other English towns is doubtful; at any rate it was not described. It was observed with great accuracy, and recorded in the periodicals of the time, by Craigie, Alison, Arnott, Henderson, Halliday, Douglas, Jackson, and Mackenzie; and it was made the subject of two special and excellent treatises by Cormack and Wardell.

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* We omit the various authorities to which the writer refers. For these the reader may consult the Review.

"It was soon discovered, however, that although this fever had not been seen in Edinburgh for many years, it was not altogether a new disease. Dr. Christison expressed an opinion that it was similar to the fever witnessed by him in 1817 – 18, and recorded by Welsh, in his well-known work, and by himself in the 'Library of Practical Medicine.' That this opinion is correct, and that the Edinburgh epidemic of 1817 – 18, was in great measure made up of this disease, no one can doubt, who will attentively collate the descriptions of Welsh and Christison, with those furnished by the observers of the attack in 1843. But not only in Edinburgh was evidence of its former existence brought forward. It was observed that it had evidently formed part of the Irish fever of 1817 – 18 – 19, which had been so minutely recorded by Barker and Cheyne. It appeared also that this fever had been prevalent in Ireland for many years. Epidemics in 1739 and 1741 were described in unequivocal terms by Rutty; and other epidemics during the eighteenth century, and those in Dublin in 1806 and 1826, presented, among other forms of fever, the peculiar and unmistakable features of the disease in question.

"The fever thus distinguished and elaborately described by the Scotch observers in 1843, became again epidemic in Glasgow, Edinburgh, and other towns in Scotland, in 1847. It did not by any means prevail so extensively, and there was a simultaneous occurrence of other species of fever; among which, however, the eyes of Steele, Paterson, Orr, and others, trained by the epidemic of 1843, had no difficulty in singling out this peculiar form. In 1847 it was also epidemic in London; and having come under the observation of Dr. Jenner, has been very carefully described. Before this time, in 1846, and in previous years, sporadic cases had been witnessed in the metropolis; and since 1847 a case has every now and then presented itself at the London Fever Hospital, and at other institutions.

"Instructed by the experience of these observers, it is also easy to perceive that this disease is not confined to these islands. It appears, although imperfectly described and confounded with other forms, in the pages of the celebrated treatise of Hildenbrand; and in the epidemic, in 1847, in Upper

Silesia, which we intend presently to describe, it evidently formed in some places the great bulk of the cases. Yet it must be said, that although its characters are so striking that the most superficial observer could not overlook them, the German systematic writers have made no allusion to it as a separate disease; and even those who observed it have failed to draw that obvious inference to which the Scotch physicians unanimously came, viz., that it is a disease altogether distinct from ordinary Continued Fever.

"We are not aware that any perfectly satisfactory evidence is to be found in French writers of the existence of this fever in France; it has, in fact, considering the elaborate descriptions of the Scotch physicians, been somewhat singularly overlooked in that country, as in Germany. In America it is not, I believe, known, or at any rate it has not been described. There is reason from Dr. Bell to believe, that it is known in Persia."

The subject of *Relapsing fever* has, as yet, received little or no attention in this country. At the time of writing my second report, I confess I was only aware of the fact that this name had been employed to designate a form of continued fever. I was not acquainted with the distinctive characters attributed to it.

In reference to that Report the reader will perceive that among the forty-eight cases analyzed, were several (fifteen) which were characterized by the occurrence of a *relapse of fever*, after convalescence appeared to be distinctly declared.* The occurrence of this second febrile career in so large a proportion of that collection of cases, was the more surprising from the fact that nothing of the kind had been observed in the cases previously analyzed, and I can now add that the same is true, as a general remark, of the cases upon the analysis of which my Third Clinical Report is based. The article in the British and Foreign Medico-Chirurgical Review, from which the above extract was taken, appeared about the time I had completed my second report. After reading that article the inquiry naturally arose whether the cases of fever characterized by the occurrence of relapses in the collection I had just analyzed, might not be cases of *Relapsing fever*. With reference to this inquiry I now propose, as I then promised, to subject them to a separate analysis, with a view to ascertain if, in other points than the occurrence of relapses, they differ from *Typhoid* and *Typhus* fever, and, if, at the same time, they exhibit traits which are said to distinguish *Relapsing fever*. Before entering on this analysis, however, inasmuch as it will probably not be an act of injustice to our readers to presume that many, if not most of them are but little acquainted with the subject, I will premise some account of the diagnostic points which are said to distinguish this form of fever. In so doing I shall avail myself, without giving more particular credit, of the article in the British and Foreign Medico-Chirurgical Review already referred to, and a paper by Dr. William Jenner, on the "identity or non-identity of the specific cause of Typhoid, Typhus and Relapsing fever," contained in the Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London." [Second series vol. 15, 1850.]

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*See page 224 et seq.

Evidences of a form of fever supposed to be identical with *Relapsing fever*, have heretofore received different names, such as the "short fever;" the "five day fever;" the "seven day fever;" "bilious remittent fever;" "remittent icteric fever;" "mild yellow fever," etc.

The disease is stated to affect all ages, and both sexes in about an equal ratio.

The *access* does not present any very distinctive features. The attack is oftener abrupt than in Typhoid fever, and the muscular and articular pains are apt to be severe.

Delirium, and other head symptoms are represented to be oftener absent, and, when present, less in degree than in the other forms of continued fever.

The absence of the abdominal symptoms which are so generally present, in a greater or less degree, in *Typhoid* fever, is an important point distinguishing *Relapsing fever*. Diarrhœa, with notable meteorism, and tenderness in the iliac regions, do not belong to the latter. It is, however, characterized by certain symptoms pertaining to the digestive system rarely found in *Typhoid*, viz: nausea and vomiting, which are frequently prominent symptoms, and tenderness over the epigastrium. The matter vomited is stated to be "bright grass green," and sometimes like coffee grounds, approximating to the black vomit of yellow fever.

The eruptions characteristic of *Typhus* and *Typhoid*, are not found in *Relapsing* fever. Sudamina and occasionally petechiæ have been observed. An eruption consisting of "small spots, round, purple, unaltered by pressure" has been described by some observers as an element of the affection. These spots are stated to be extremely like flea bites, and it does not appear to be fully ascertained that they were not, in fact, flea bites. The chest symptoms, i. e. cough and bronchial rales, so generally present in *Typhoid* fever, are said to be less commonly present in this disease. *Epistaxis*, so frequently observed in *Typhoid* fever, sometimes occurs. The pulse, seldom falling below 100, in more than half the cases is 120, and in a considerable number the frequency is still greater.

Profuse sweating is stated to occur pretty uniformly, preceding the apparent convalescence, and also when the relapse of fever is about to terminate. Another distinguishing feature referable to the skin, is more or less yellowness, occurring on the fourth or fifth day. In severe cases the jaundice is often a prominent symptom. The most distinctive event, however, is that indicated by the title of the disease, to wit: the occurrence of *relapses*. The first febrile career continues for a period rarely less than *four*, nor more than *ten* days, and then ends, generally after profuse sweating, which is considered to be critical, leaving the patient free from febrile movement, and apparently convalescent. After an interval varying in duration from *five* to *eight* days, another attack occurs, generally abruptly, and frequently preceded by a chill. The recurring febrile movement is equally or more severe than the first. It continues from four to five days, and then terminates usually after profuse sweating. Usually after a single relapse, the patient becomes permanently convalescent. A second, third, and even a greater number of relapses, however, have been observed to occur.

The disease is seldom fatal. Patients almost uniformly recover, unless some complication takes place, such as pleurisy, pneumonitis or dysentery.

The most distinctive characters derived from autopsical examinations, are the absence of the intestinal lesions belonging to *Typhoid* fever. The peyerian glands are unaffected. The spleen is generally enlarged and softened.

It may be communicated by contagion, and Dr. Jenner, in the article already referred to, has collected observations tending to show that Relapsing fever cannot be derived from patients laboring under the other forms of Continued Fever, but that it alone produces the special miasm for its propagation. How far the facts contributed by him go to establish this important point, it does not fall within my present purpose to inquire.

This form of fever does not secure immunity from the other forms; nor from subsequent attacks of the same form.

These are, briefly, the more prominent of the traits distinctive of *Relapsing* fever which are mentioned by the two writers to whom I am indebted for the foregoing summary. They appear to have been deduced from an examination of reports of epidemics, supposed to be of this character, by various authors. If they are sufficient to render probable the position that the disease to which they relate is a peculiar form of fever, distinct from the *Typhus* and *Typhoid* forms, it is certainly desirable that collections of cases should be subjected to careful numerical analyses. The question can only be definitively settled by the results of such analyses.

So far as I know, we have no account of a form of fever prevailing in this country, analogous to the relapsing fever as just described. Were the cases characterized by relapse, among those observed by me during the winter of 1850–51, cases of *Relapsing* fever? With a view to arrive at the answer to this question, and, if the conclusion be in the affirmative, to furnish a small contribution toward the natural history of that form of fever, I will now proceed to analyze the cases referred to.

Analysis of Fifteen Cases of Continued Fever, characterized by Relapses.

In my Second Clinical Report I have stated that *fifteen* of the *forty-eight* cases upon the analysis of which that Report was based, were characterized by the occurrence of relapses. Of these fifteen cases *nine* were included among those of *Typhoid* fever; *one* was considered a case of *Typhus*, and *five* were among the cases of *Doubtful type.* Upon a fresh examination of the cases I find that one case in the *Typhoid* group was rejected from the list in consequence of the first convalescence occurring about the time the patient was admitted into the hospital. I am satisfied that this case may be included in the category. The single case of *Typhus* characterized by a relapse, was undoubtedly a case of that type, the characteristic eruption being well marked. The apparent convalescence in this case occurred on the *eleventh* day, and the relapse of fever was of two days duration, after an interval of only three days. These facts show that this could not have been a case of *Relapsing* fever, and I shall accordingly now exclude it. The whole number of cases, therefore, will remain the same as stated in the Second Report, viz: fifteen; and of these fifteen cases *ten* were distributed among those of *Typhoid* fever, and the remaining *five* among the cases of *Doubtful type.*

Of the fifteen cases, *eleven* were males, and *four* were females.

The age of the youngest patient was *nine* years; of the oldest, *thirty-five* years. The average age was a fraction over *twenty* years.

All the patients were from Ireland. *Six* had recently arrived in this country—i. e. within the space of five weeks. *Six* had lived in this country several months—i. e. between six and sixteen months. *One* had resided in this country *four*, and *one* five years. In one case the period of residence is not stated.

Two of the cases were admitted in the month of October; *four* during the month of November; *eight* in December; *one* in January, and none in February and March, my term of service ending with the latter month.

Access. The duration of the access was not ascertained in *seven* cases. Of the remaining *eight* cases, the attack was sudden in *four;* there was an access of a single day in *one* case, and of *two* days in *two* cases. The duration of the access here, as heretofore, is measured by the period elapsing from the commencement of illness, to the time of taking to bed.

Of *thirteen* cases in the histories of which the presence or absence of a chill, or of chills is noted, the access was ushered in by one or more in *twelve*. The chill was followed by perspiration in *seven*, and was not thus followed in *three* cases.

Pain in the head, back and limbs was complained of during the access, or at the onset of the disease in *nine* cases; in the head alone in *three* cases; in the head and limbs in *one* case, and in the back only in *one* case.

Of thirteen cases in which the presence or absence of vomiting during the access, or at the commencement, was noted, it existed in *eight*, and was absent in *five*.

Diarrhœa is not noted to have been present during the access, or at the commencement, in a single instance.

Three of the patients stated that they had previously had an attack of Continued Fever.

Two of the patients were sons of the patient affected with *Typhus* fever, in which an imperfect relapse occurred, this case being that already referred to which was included among the cases characterized by relapse in the Second Report.

General Aspect. Passive capillary congestion of the face was noted in all cases but one, and in the excepted instance the congestion was active, in other words the face was flushed. The passive congestion was considerable in *three* cases, moderate in *eight* cases, and slight in *three* cases.

The eyes were more or less injected in *five* cases; in *one* case there was no injection; and with respect to the remaining cases nothing is stated relative to this point.

Yellowness of the conjunctiva existed in two cases. These were the only two cases in which this symptom was noted out of the forty-eight cases composing the collection upon the analysis of which the Second Report was based.

Nervous System. Of *fourteen* cases there were no manifestations of delirium in *five*, and more or less delirium existed in *nine*. The manifestations of delirium consisted in incoherency only, in one case. In the remaining eight cases there were efforts to get out of bed. In several instances, however, the delirium was of very brief duration. In three cases it was manifested only on a single night. In not a single case was this sympton at all prominent.

Deafness is noted but in *two* cases.

Digestive System. In *ten* cases there was nothing like diarrhœa. Of the remaining *five* cases the evidences of diarrhœa consisted in *one* case of too frequent dejections for the first three days, the patient having taken a dose of salts the night before entering the hospital; in one case the dejections were too frequent on the fifth, sixth and seventh days; in two cases this was the fact on a single day only. In but one case was diarrhœa a symptom of any prominence. These results are remarkable when it is considered that *ten* of the cases were embraced in the *Typhoid*, and none in the *Typhus* group. More or less *meteorism* existed in *nine*, and this symptom was absent in *six* cases. The meteorism was moderate in *four*, and slight in *four* cases. In *one* case only was it considerable.

More or less *abdominal tenderness* was present in all but three cases. There was tenderness in the right iliac region in *ten* cases. In all of these ten cases the degree of tenderness was slight, and in several instances it was present only for a short period, in some but for a single day. *Tenderness over the epigastrium* existed in *six* cases. By reference to the Second Clinical Report it will be seen that of the forty-eight cases upon the analysis of which that Report was based, epigastric tenderness was noted in six instances. Thus all the cases in which it was present in that collection were characterized by relapses! The tenderness was universal over the abdomen in *one* case.

Vomiting is noted to have occurred in but three cases ; this is exclusive of the access or commencement of the disease, to which reference, as to this symptom, has been already made.

Eruption. Each of the fifteen cases was unattended by an eruption. This result is certainly remarkable. Recollecting that ten of the cases were included in the cases of *Typhoid* fever upon the analysis of which my Second Clinical Report was based, it is interesting to refer to the facts contained in the section of that Report devoted to eruptions. It is there stated as follows: "The characteristic eruption was present in *twelve* of the *twenty-nine Typhoid* cases. This result differs from that obtained by the first analysis. The latter developed a larger proportion of cases in which this symptom was present, viz.: in *twenty-three*, of *thirty* cases; the ratio, thus, being *two-thirds*, while in the present collection it is less than *one-half*. I can offer no explanation of the above disparity."

If we were to deduct from the twenty-nine Typhoid cases in the second collection, the ten cases characterized by relapses, in which there was no eruption, the ratio of the cases in which the eruption was present would be nearly the same as in the first collection — the disparity with respect to this symptom would disappear; or, in another point of view, of the seventeen cases in the second collection in which no eruption existed, *ten* may be suspected to have been cases of Relapsing fever. The disparity in comparing the second with the third analysis, as respects the eruption, will be found to be even more striking.

Respiratory Apparatus. Epistaxis was noted in *six* cases. Pneumonitis existed in *three* cases. In two cases, spasmodic inspiration occurred. Aside from these facts, there was nothing worthy of note referable to the respiratory system.

Circulation. The average mean frequency of the pulse was a fraction over 75. The highest mean in any case was 108; the lowest, 69.

As respects the average mean frequency, it was considerably less in these cases than in the *Typhoid* cases in either collection; and the disparity is still greater when compared with the cases of *Typhus.*

Skin. Sweating occurred in ten of twelve cases, the histories of which contain information on this point. The sweating was profuse in *eight* cases. It was noted but once in nine cases, and three times in the remaining case.

In each of the cases in which sweating occurred, it took place at a period more or less remote from the date of the first or second convalescence.

Moisture of the surface, i. e., a degree of perspiration less than sweating, was noticed in twelve of fourteen cases. It occurred on one day in *six* cases, twice in *two* cases, and on several days in *four* cases.

Both sweating and moisture, thus, were present in a large proportion of cases; but, it is a point to be noticed, that they did not occur as critical events.

Duration. The average duration of the febrile career, from the time of taking to the bed to the date of the first apparent convalescence, was about *nine* days. The longest period was *twelve* days, and the shortest *six* days.

The average duration of the interval between the date of the first apparent convalescence, and the recurrence of fever, was precisely five days. The longest interval was *eight* days; the shortest *three* days.

The average duration of the second febrile career was *six* days. In one case, it is noted that the relapse of fever lasted only two days. Exclusive of this case, the shortest period was *four* days, and the longest *ten* days.

Mortality. All the cases terminated in recovery.

Sequelæ. Nothing coming under this head worthy of note is contained in the histories.

Concluding Remarks.

On reviewing the results developed by the foregoing analysis, and comparing them with the distinctive traits of *Relapsing fever*, as presented in the account preliminary to the analysis, the correspondence is certainly striking. The access was abrupt in one-half the cases in which this point was ascertained, and unusually short in duration in the remainder. In 5–14 of the cases, there were no evidences of delirium; and in all the cases, this, together with other head symptoms, was slight.

In 10–15 of the cases there was entire absence of diarrhœa, and in one case only was this symptom in any degree prominent or persistent. Vomiting was not a prominent feature, being present at the access or commencement in but 8–13, and afterward in but three instances. Iliac tenderness was very slight in every case, and in six cases tenderness over the epigastrium, which is extremely rare in *Typhoid* and *Typhus* fever, was marked. Meteorism was considerable in but a single instance, and absent in several cases. The abdominal symptoms, thus, were absent or slight in a remarkable degree, unless the cases were of the *Typhus* type, and it is to be borne in mind that none of the cases were considered to be of that type. The chest symptoms, and the circulation offer nothing worthy of particular note, except that the frequency of the pulse was considerably less than is stated to belong to the history of Relapsing fever. Sweating and moisture occurred in a very large proportion of the cases, in this respect presenting a contrast with the average occurrence of these symptoms in *Typhus* and *Typhoid* fever; but differing from other observations with respect to *Relapsing* fever in the fact that these symptoms did not occur at the time of the temporary or permanent convalescence. Mild jaundice, a very rare event in *Typhus* or *Typhoid* fever, was present in *two* of the fifteen cases. But the most striking of all the points of correspondence relate, first, to eruptions, and, second, to the relapses. In none of the cases was there an eruption, a fact which would certainly be very remarkable with respect to the same number of cases of the *Typhus* or *Typhoid* type occurring successively. The circumstances pertaining to the relapses, viz., the duration of the first febrile career, of the interval, and of the second febrile attack, accord with the previous description of these events as they are stated to occur in *Relapsing fever*. Finally, the absence of a fatal tendency is exemplified by the fact that all the cases ended in recovery.

In view of these facts the conclusion seems unavoidable that the cases of fever characterized by relapses, among those which came under my observation in 1850—51, presented the distinctive traits attributed to *Relapsing fever* sufficiently marked to entitle them to be ranked in the class of cases which have been described by different observers as a peculiar form of Continued Fever. This conclusion does not necessarily involve the position that the traits distinguishing the cases authorize their separation as cases of an affection entirely distinct from *Typhus* or *Typhoid* fever. It of course follows either that this position is correct, or that the *Typhoid* or *Typhus* forms of Continued Fever occasionally exhibit, as peculiar modifications, the symptoms which are considered the diagnostic features of *Relapsing fever* by those who regard the latter as a separate form of the disease. I am not prepared to discuss the relative merits of these inferences.

THE

TRANSPORTATION AND DIFFUSION

BY CONTAGION, OF

TYPHOID FEVER:

EXEMPLIFIED IN ITS OCCURRENCE AT NORTH BOSTON, ERIE CO., N. Y.

THE TRANSPORTATION AND DIFFUSION

BY CONTAGION, OF

TYPHOID FEVER.

The contagiousness of *Typhoid* fever is not yet settled satisfactorily to all minds. While few, if any, at the present time, entertain doubts as to *Typhus* being communicable from one person to another, the opinion is still held by some that this is not true of the *Typhoid* type of Continued Fever. The weight of authority is doubtless against the latter opinion, but so long as it obtains with a respectable minority, the subject remains open for discussion, and the accumulation of evidence on either side continues to be a desideratum. Of seventeen essays recently submitted to the French academy of medicine for a prize to be adjudged for the researches shedding most light on the subject, in thirteen the affirmative of the question was maintained, but four of the candidates contended in behalf of * the non-existence of contagion. This is cited simply to show the want of unanimity in the medical profession on this point. To refer to an illustration nearer home, in an American publication designed for the use of medical students, issued but a few months ago, non-contagiousness is included among the traits distinguishing *Typhoid* from *Typhus* fever. Under these circumstances an apology is not needed for inviting the attention of the medical reader to facts which appear to bear with remarkable cogency on this mooted question. In this remark I have reference to the occurrence of a series of cases of *Typhoid* fever at a place known as North Boston, county of Erie, N. Y., in the autumn of 1843, a report of which was communicated by the writer for the American Journal of the Medical Sciences, No. for July, 1845. Having, since that report was written, been, practically, more conversant with the *Typhoid* and *Typhus* forms of Continued Fever than previously, I am prepared to speak with still greater confidence of the correctness of the diagnosis in the cases referred to. Additional facts, moreover, relating to the prevalence of the disease, have come to my knowledge, which strengthen considerably the evidence of contagion. These considerations have made me desirous of reproducing an account of the circumstances connected with these cases, rendering it more complete, and, at the same time, divesting it of details which are unimportant so far as concerns their bearing on the question of contagion; and inasmuch as the subject is one falling within the scope of the preceding observations relating to Continued Fever, there seems to be no impropriety in devoting to it a few pages of the present work.

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* British and Foreign Medico-Chirurgical Review, January, 1852.

The proof of contagion in the propagation of fever is obtained mainly in two ways. It is afforded, in the first place, by the production of the disease in public hospitals into which patients affected with fever are received, among the other inmates, and those brought into contact with the disease by their attendance on the sick. If under these circumstances a much larger number of individuals contract the disease than would be expected from the degree of its prevalence out of these institutions, and especially if this is found to occur not at a single time or place only, but at various periods, and in different situations, we are bound to acknowledge a principle of communicability. In this way the contagiousness of Continued Fever has been already abundantly established. The evidence of contagion, however, thus obtained, applies, for the most part, to Continued Fever as a whole, not to the particular forms or types of the disease; for, usually, at public charities, patients laboring under *Typhus* and *Typhoid* fever, are received simultaneously. Moreover, until lately, these two forms or types have not been carefully discriminated from each other; and this remark holds true, to a considerable extent, with respect to the present time. Without such a discrimination, it is evident that, be the proof of contagion ever so strong, it may be contended that the contagious miasm is developed by those affected with *Typhus*, exclusive of the cases of *Typhoid* fever.

Hospital observations that have related to cases of *Typhoid*, to the exclusion of *Typhus* fever, have frequently appeared to favor the opinion that the former is not propagated by contagion, for these observations do by no means always furnish evidence of the communicability of the disease. For example, Dr. James Jackson, of Boston, after many years service as attending physician at the Massachusetts General Hospital, states that no facts have ever fallen under his cognizance which appeared to involve the operation of contagion, and numerous cases of *Typhoid* fever were admitted into that institution every year.* A similar statement was formerly made by Louis; and an abundance of negative testimony of this kind might be cited. When, on the other hand, it is considered how strikingly marked is the fact of contagion in many instances in which cases of *Typhus* alone, or of the two types conjointly, have been congregated together, we can understand how the conclusion may seem to be based on experience that the *Typhus* form is alone communicable; and when occasionally instances occurred conflicting with this conclusion, it might appear more rational to suspect inattention or error of diagnosis, on the part of the observer, in the discrimination of *Typhus* from *Typhoid*, than to attribute a contagious property to the latter. Such a suspicion may always be advanced to throw some doubt on the observations, made in public institutions, which are adduced to prove the contagiousness of *Typhoid* fever; and, hence, it is difficult to settle the question beyond cavil by hospital experience.

The second mode by which the proof of contagion may be developed, is free from these difficulties, and furnishes evidence far more satisfactory and conclusive. This is the production of fever and its diffusion among different members of a family or a community into which a patient affected with the disease had been transported. In addition to other grounds of superiority hich this kind of evidence has over that afforded by hospitals, we can with greater certainty isolate the type of the fever which furnishes the miasm of contagion. We can determine positively whether the transported patient was affected with *Typhus*, or *Typhoid* fever, and that the individuals who were subsequently affected had been brought into contact with this case only. The importance which belongs to these points must be at once apparent.

Were it proposed to devise a series of experiments the most unobjectionable and complete, in order to test the communicability of a particular form of disease, no better plan could be adopted than to introduce a case or cases of the disease into districts where it was not at the time prevailing, and to procure free exposure on the part of some of those residing in the district. The experiment would be more satisfactory if the disease thus introduced was not indigenous in that locality, and had never, or at least not for many years before, been known to occur. To render the experiment as perfect as possible by divesting it of any moral influence, it should be made without the knowledge of those who were to be the subjects. In other words, the character of the disease should be unknown, and the persons coming in contact with it should be wholly unconscious of any exposure to contagion. Now, if under all these circumstances, a large proportion of those of the inhabitants of the district who had been brought into contact with the disease, are attacked simultaneously, or in quick succession, and thus, a new and hitherto unknown affection is suddenly developed, which spreads rapidly over a limited circuit, affecting those only who had been in habits of intercourse with the imported case or with the persons who were subsequently attacked, others residing in the same district, but not brought into contact with the disease, uniformly escaping—what would be the logical deduction from the facts? In the absence of all evidence of epidemic or endemic agencies, contagion offers the only adequate explanation. The laws of probabilities would not authorize the supposition that the events depended on mere coincidence. Stronger proof of communicability certainly could not be obtained by any other process of investigation. To undertake such an experiment would neither be practicable nor justifiable. The same combination of circumstances, however, not involving premeditation or design, will be found in the history which I shall proceed to give of the development and diffusion of *Typhoid* fever at North Boston in 1843.

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* I have quoted this statement by Dr. J., from memory, and have not the work in which it is given at hand to refer to. From a reference to it in another work since the above was in type, I suspect I have given the statement too unqualifiedly.

The place called North Boston is situated about eighteen miles from this city, and twelve miles from the lake shore, at a considerable elevation above the level of the lake. The situation, at the time mentioned, was in every respect salubrious. There were no paludal grounds in the neighborhood. Neither Intermittent fever, nor any disease had prevailed for several years. The medical gentlemen residing in the vicinity united in affirming that it was as healthful a locality as any in the county. Not only was *Typhoid* fever an unknown disease in that particular situation, but in no part of this county was it known to have occurred up to that time. The fever then, and previously indigenous in this part of the country, was mild remittent, or what was more commonly called *bilious* fever. It is indeed possible that cases of *Typhoid* fever may have occurred from time to time without being recognized as such; but it is undoubtedly true that Continued Fever was not the usual form of fever met with in medical practice. In this respect a marked change has taken place during the past eight or ten years. Remittent or bilious fevers have diminished in the frequency of their occurrence, and cases of *Typhoid* fever have become proportionably more common. This statement, I believe, accords with the experience of practitioners generally in this neighborhood. At the time the cases of fever of which I am to give an account were in progress at North Boston, it was a novel disease to the physicians who were called in attendance, and this was a source of embarrassment in endeavoring to arrive at the explanation of their occurrence.

The settlement at North Boston, in 1843, was quite small, consisting only of nine families, all being within an area an hundred rods in diameter, but the few houses in which the disease occurred were closely grouped together, the house farthest removed from the tavern being only ten rods distant. Forty-three persons made up the entire community.

On the 21st of September a young man from Warwick, Massachusetts, being on a journey westward, took lodgings at the tavern, kept by a man named Fuller. He had been ill for several days, and had kept on his journey until he felt unable to proceed farther. He remained at the tavern, and died on the 19th of October. Dr. Timothy T. Lockwood, now a practitioner in this city, but at that time residing a few miles from North Boston, attended the young man to within nine days of his death. He was then superseded by a Thomsonian practitioner, who was discharged after a few days trial, and was succeeded by Dr. Allen, a partner of Dr. Lockwood. Diarrhœa, and, toward the latter part of the disease, low muttering delirium were prominent symptoms in this case. Drs. Lockwood and Allen, who saw more or less of the cases which subsequently occurred, state unqualifiedly that the disease was the same. The patient was undoubtedly laboring under *Typhoid* fever. He had but a few days before left a part of the country (Massachusetts) where this disease is the prevailing form of fever. The clergyman of the town in which he resided, Rev. Preserved Smith, in a letter written shortly afterward, in reply to my inquiries, stated that during the November following his departure, (while the subsequent cases were in progress at North Boston,) there were a few cases of a mild, slow fever in the town of Warwick, although not in the immediate section of the town in which the young man resided. The form of fever referred to by Mr. Smith was the common autumnal fever of New England; in other words, *Typhoid* fever.

Between October 19th, and December 7th, twenty-eight of the forty-three persons comprising the little community at North Boston were attacked with fever, and in ten instances the disease proved fatal.

The first patient attacked was a son of Fuller, the innkeeper, aged sixteen years. He was attacked on the 14th of October, twenty-three days after the arrival of the stranger. About the same time, or a few days afterward, a daughter of Fuller, aged fifteen, was seized; another daughter was taken on the 26th of October, and another, aged three years, about the same date. A son, aged eight years, was attacked on the 19th of October. Two other cases occurred in this family, both proving fatal, the dates of the attack not being ascertained. Seven cases (exclusive of the stranger) occurred in this family, and three deaths. These, and the cases occurring in the other families, were seen professionally by Drs. Lockwood and Allen, Dr. Camp, since deceased, Dr. Charles H. Baker, and others.

Evi Fuller, aged 21, a son of the innkeeper, who lived at some distance, but at the time of the sickness came to assist his father's family, and occupied with his wife part of a house about four rods from the tavern, was attacked on the 15th October, and recovered.

Two cases occurred in the family of Penhallow, residing about eight rods from Fuller's tavern. The patients were children, one aged seven, and the other nine years. The dates of the attack in these two cases were October 16th, and 23d.

In the family of Ingraham, residing about three rods from the tavern, were seven cases and two deaths. A son, aged seven years, was attacked about the 15th of October; another son, aged nine years, about the same time; a daughter, aged five years, 29th of October; another daughter, aged twelve years, 8th of November. The dates in the three other cases are not ascertained.*

The family of Hallick resided about ten rods from Fuller's. Seven cases occurred in this family, five of which proved fatal. The dates of attack in two cases — these being the only cases of which notes were taken — were as follows: a daughter, aged sixteen years, 28th October; another daughter, aged fourteen years, 8th November.

Four cases occurred in the family of Dobbs, situated about three rods from the tavern. All these cases recovered. The dates of attack in three of these cases are as follows: a daughter, aged one year, 29th October; another, aged eleven years, 1st November; another, aged eleven years, 8th November.

Mrs. Hill, aged about fifty, lived within twenty feet of the tavern. Her son, aged about twenty-one, was attacked; the date not ascertained.

Three families, only, in the settlement, escaped. One of these, named Stearns, lived in the house, a part of which was occupied by Evi Fuller, son of the innkeeper, distant four rods from the tavern. This family consisted of Mr. Stearns and wife, four children — the eldest about nine years of age — and a boarder. This was the only family into which the disease did not enter, of those living within the area to which the disease was restricted. The reader is desired to bear in mind this fact, which has an important connection with another fact presently to be mentioned. Another family named Sprague, lived about forty rods distant, over a stream three rods in width. This family consisted of the husband and wife, the former being fifty, and the latter not far from the same age ; and three others, children that he had taken to support, and a domestic. A third family, named Bailey, also lived about forty rods distant. This family consisted of husband and wife, the ages respectively being thirty-six and thirty-four, and either three or four children, the eldest eight or nine years of age.

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* I am only able to give dates in the cases of which I have notes more or less extensive of the histories.

The ages of the persons in whose families the disease prevailed, but who themselves escaped, are of importance with reference to the discussion which is to follow. According to estimates by Drs. Lockwood and Baker, to whom I am indebted for information relative to this and several other points, the ages were as follows: Fuller, the innkeeper, about 50; Ingraham, about 50; Dobbs, about 45; Penhallow, about 40; and Hallick, about 40.

The wives of all these persons were living, and the age was in each instance not much less than that of the husband.

Another point of considerable importance, to which I shall have occasion to refer, is the condition of the respective families as regards the necessaries and conveniences of living. Fuller, the innkeeper, was in comfortable circumstances. All the other families in which the disease prevailed, were poor, to a degree amounting to considerable destitution. This was not true of the few families which escaped, viz.: the families named Bailey, Sprague and Stearns. These were all in a situation to live comfortably.

The occurrence of a severe form of disease, affecting, in a brief period, more than one half of this small, isolated community, and proving fatal in so large a proportion of cases, as might be expected, occasioned not a little excitement at the place. This was naturally increased by the fact, that the disease was one presenting, for that locality, remarkable features, giving rise to discussion, and discrepancy of opinion, among the medical practitioners of the neighborhood. The popular explanation of the origin of the disease, added greatly to the intensity of the excitement. This involves a point of importance in the history. Between the family of Stearns, residing four rods from the tavern, and Fuller, the innkeeper, a bitter feud existed, which had given rise to various acts of hostility. The two families had no intercourse, and, for a reason shortly to be mentioned, soon after the cases of fever occurred, all intercourse of Stearns' family with the other families at the settlement was broken off. The other families were on terms of free and frequent intercourse with the family of the innkeeper, and with each other. To this point I shall presently have occasion to refer. Under these circumstances, the story was started that the disease was produced by some poison, introduced into the families affected, through the agency of Stearns. The family of Fuller, and the other families in the vicinity, with the exception of that of Stearns, were accustomed to obtain the water used for drinking and other domestic purposes, at a well situated near the tavern. It was charged upon Stearns that he had poisoned this well, and that the disease was due to this source. This story was fully believed by nearly all the inhabitants of the place, so that several pumps were placed in the well, and an effort made, but without avail, to exhaust all the water it contained. Some facts appeared to give a strong support to this explanation. The family of Stearns did not suffer from the disease. This family alone, of all those in the immediate vicinity, did not draw water from Fuller's well. Up to a short time before the sickness occurred, the family of Stearns had been supplied with water from Fuller's well; but owing to the hostility between the two families, this privilege had been refused to Stearns, so that he was obliged to dig out, and deepen an old well of his own. Another of the three families which escaped, living over the creek, did not use water from that well. By the others it was used daily. These facts, coupled with the relations existing between Stearns and Fuller, and the singular character of the disease, were considered to furnish circumstantial proof of guilt sufficiently conclusive. This belief continued during the whole time the cases were in progress, and is still entertained by some of those who resided in the place at the time. A quantity of the water was brought to this city, and carefully analyzed by Drs. C. H. Raymond and George E. Hayes. It was found to be remarkably pure — the only foreign ingredient detected being a small proportion of saccharine substance, which was explained by the fact that the vessel in which the water was transported had previously been used as a molasses jug! So deeply rooted, however, was the conviction of poison, in the minds of the inhabitants, that, to account for the negative result of the analysis, it was supposed, in some way or other the water in the jug, originally taken from the well, was changed before it came into the hands of the analysts! A point of importance involved in this popular belief, is, that contagion was not suspected. If the disease was diffused in that way, i. e., by contagion, the exposure was wholly unconscious, on the part of those who suffered from it. The charge of poisoning was so openly made, that a prosecution was commenced for slander by Stearns, the person to whom the crime was imputed, which was finally settled, on the payment, by the party prosecuted, of one hundred dollars.

During the progress of the disease, and when the excitement was at its height, an application was made to the county superintendents of the poor, on the ground of the poverty of the most of the families afflicted, that a physician from this city should be sent to assist in inquiring into the nature and origin of the disease. The writer was employed for that purpose. I visited the place November 5th, and spent the greater part of a day in personal investigations. I made an autopsical examination of the body of a child, about twelve years of age, dead with the disease, recording the appearances, and took notes at the bedside of the history and symptoms in nine cases which were then in progress. Dr. Camp, an intelligent practitioner, since deceased, who had charge of several of the patients, engaged to keep daily records, and subsequently placed at my disposal histories, more or less complete, of ten cases. The facts thus collected, together with farther information obtained from Drs. Allen, Baker and Lockwood, furnish the evidence of the character of the disease; and to this subject I will first direct attention. The opinion that the disease was *Typhoid* fever has been already implied. What are the grounds upon which this opinion is based?

In my former account, communicated for the Am. Jour. of Med. Sciences, I have given the details of the single autopsy, and of the histories of the cases so far as they were recorded by Dr. Camp and myself. Of these details I shall select those only which concern the present object, referring the reader who may desire a fuller description, to the article just alluded to. In the first place, the intestinal lesions characteristic of *Typhoid* fever were clearly present in the case examined. The record states that 'an ulceration of the size of a shilling piece was discovered about six inches above the cœcum, and fourteen other ulcerations were found along the lower third of the ileum. The upper ulcerations were of an oval form. Above the ulcerations the elliptical patches were thickened. The ulcerations corresponded with the enlarged mesenteric glands.' 'The mesenteric glands were enlarged; the range nearest the intestine about the size of peas, some of those nearest the spine nearly as large as a hickory nut, and one quite as large.' 'Upper third of intestine presented a healthy appearance.' The lungs were free from tuberculous disease, and no morbid appearances worthy of note were found in other organs. The mode of describing the lesions above mentioned might be improved, but the description is sufficient to establish the existence of the changes, situated in the Peyerian patches and mesenteric glands, which belong to *Typhoid* fever. The only possible doubt as to their character would involve the supposition of their being due to tuberculosis, and this is disproved by the absence of tubercle in the lungs.

Next of the symptoms. Of the *eighteen* cases of which histories more or less complete were obtained, *diarrhœa* was present in *fifteen*. In some of the cases this symptom was slight, in other cases severe. It followed the operation of cathartic or laxative remedies in some cases, but it occurred, and persisted in other cases in which these remedies were not employed.

Of *fourteen* cases in which the presence or absence of *Tympanites* was noted, it existed, to a greater or less extent, in *eleven*.

Abdominal tenderness was present in *seven* of *nine* cases, the histories of which contain information on this point. Nausea and vomiting were in no instance prominent symptoms.

More or less *mental aberration* was noted in *twelve* cases, and in one case only is it stated that this symptom was absent. The aberration consisted of incoherency especially at night, and muttering. It was evidently of a quiet character. *Drowsiness* and *tendency to stupor* is noted in some of the cases, and among the symptoms in cases proving fatal, *picking of the bed clothes* and *sliding down in bed* are mentioned.

Cough and expectoration are mentioned in the history of *nine* cases, nothing being stated relative to this symptom in the remaining *nine*. In some cases these symptoms were prominent, in others slight.

Information respecting the duration of the access is contained in the notes of *seven* cases. As stated in these cases, respectively, it was as follows:—A week in *two* cases; several days, ten days, five days, four days, three or four days, each in *one* case.

The data for determining with precision the duration of the febrile career are defective in all but the fatal cases among those of which notes were made. In these cases, five in number, the days from the date of attack to the time of death was, respectively, as follows:—thirteen, in *two* cases; eighteen, fourteen, and seven, each in *one* case.

The disease was ushered in by slight chills, lassitude, loss of appetite, headache; perspirations occasionally occurred, and in no instance did it eventuate in intermittent paroxysms of fever.

An eruption was not generally sought for. Dr. Baker, however, at that time a partner of Dr. Camp, informed me that he observed spots on the chest and abdomen in several of the cases. His attention was inadvertently directed to them, without expressly looking for an eruption. He stated that the spots resembled flea bites, but were about half the size, and slightly elevated. He thinks they were noticed by him toward the latter part of the disease.

The foregoing account of symptoms is a digest of the diagnostic points embraced in the histories of the cases which are given in full, so far as obtained, in the former report. Although not sufficiently complete for all the purposes of numerical analysis, the facts are fully adequate to establish the diagnosis. On this point every reader practically conversant with *Typhoid* fever must, I think, be satisfied. While ample positive proof is furnished, there is an equal amount of negative evidence. That is to say, if the disease were not *Typhoid* fever, it must have been either *Typhus*, or *bilious remittent fever;* and the facts *excluding* the two latter affections, are not less strong than those which are characteristic of the first. The diarrhœa and other abdominal symptoms; the pulmonary symptoms; the gradual access, and the special lesions after death, are the positive points distinguishing it alike from *Typhus* and *Remittent* fever. The absence of a copious eruption extending over the extremities and attracting notice, in a series of twenty-eight cases, is an important negative fact distinguishing from *Typhus*. Another negative fact having a similar significance is the striking preference for young subjects. The oldest of the patients affected was not over twenty-three years of age. These cases furnish an excellent illustration of this law of *Typhoid* fever, a law which distinguishes this form of fever from *Typhus*, the latter showing no such respect for age. The prevalence of the disease, moreover, was confined to a period of the year during which *Typhoid* fever is most apt to occur, viz: in the autumnal months, *Typhus* showing no predilection for any particular season, and remittent fever occurring at an earlier date.

Among the negative points which serve to exclude remitting fever are the non-occurrence of vomiting as a prominent symptom; the absence of distinct remissions, and the fact that not only in no instance was the disease converted into an intermittent, but, at the expiration of eighteen months, intermittent fever had not occurred in any of the patients who had had the disease. In fact, intermittent fever, since that time, as well as before, has not been known in that locality.

Assuming, now, that the disease is clearly shown to have been *Typhoid* fever, the question arises, how are its production and diffusion to be accounted for? The answer to this inquiry is implied in the title of the present memoir. The disease was transported to North Boston by the sick stranger who died at Fuller's tavern, and thence diffused throughout the settlement. I need not add, it is with reference to this conclusion that the foregoing history is chiefly interesting and valuable. What are the circumstances embraced in this history upon which is based the opinion that the prevalence of the disease was due to contagion? Let us review the facts contained in the foregoing history bearing on this subject.

In a small, isolated community, consisting of nine families, seven of which lived within a few rods of each other, a person is introduced affected with *Typhoid* fever, and after lingering twenty-nine days, dies with this disease. Prior to that event the members of this community were free from disease of any kind—the situation was in every respect healthy, and *Typhoid* fever was a disease unknown in that place and neighborhood. The patient lingered and died at the public house, which was a place of daily resort for the members of those seven families with a single exception. One family, consisting of several persons, living but four rods from the tavern, was on terms of hostility with the innkeeper which precluded all intercourse. The arrival of a sick stranger with a severe disease was an event of interest to the inhabitants. He was visited, more or less, daily by the different members of the families living closely at hand, with the exception of the family referred to; and the members of the family of the inn-keeper were of course brought into close contact with the disease. Twenty-three days after the arrival of the stranger, two members of the family of the inn-keeper were attacked with the disease, and subsequently five others in this family. In all the other families living within a few rods of the tavern, excepting a single family, cases occurred, more or less in number, within the space of about a month from the date of the first case developed after the stranger arrived; and during this period more than half the population of the settlement were affected. The disease then ceased further progress, no cases afterward occurring. The family in which no cases occurred was the only family of the seven not brought into contact with the disease. The relations of this family to that of the inn-keeper, as just stated, precluded all social intercourse, and shortly after the disease began to spread, its production being imputed to the agency of this family, all intercourse with the other families affected with the disease was at once suspended. Stearns, the person whose family is now referred to, has informed me that he did not see any of the patients affected with the fever. The origin of the disease being supposed to be from water poisoned by Stearns, the idea of communicability was not entertained, so that no apprehensions were felt of danger from free intercourse with the sick, and no precautions taken to obviate the risk of exposure.

Now in view of this reviewal of the facts, if it be claimed that the disease was not transported to the place and diffused by contagion, it is necessary to admit a series of coincidences almost incredible. It will be seen that the circumstances which have just been rehearsed, embrace all those which had been previously mentioned as important conditions for a fair experiment in order to test the contagiousness of a disease. In fact, if every circumstance connected with the history of the disease at North Boston had been deliberately selected and arranged for a scientific object, they could hardly have been rendered more complete or judicious.

Assuming the transportation of the disease and its diffusion by contagion, in this instance, to have been proved, an interesting point of inquiry remains to be noticed, involving some circumstances embraced in the foregoing history to which particular reference has not yet been made. Ordinary experience furnishes small evidence of the contagiousness of *Typhoid* fever, so that while there are some who still deny to this disease the faculty of reproduction, all admit that its power of self diffusion is usually weak.

The fact of contagion is, for the most part, established by instances more or less analogous to the occurrence of the disease at North Boston, of which several are on record. This fact, if sufficiently sustained by positive proof, cannot be invalidated by negative evidence, be it ever so abundant. But it is an apparent inconsistency that a disease should, in the great majority of instances, seem to be devoid of the principle of contagion, and occasionally exhibit this principle in a striking degree. The history of the disease at North Boston, taken alone, would show that *Typhoid* fever is remarkably contagious. How is this inconsistency to be explained? We may adopt two methods of explanation. It may be supposed that the miasm of contagion is much more abundant, or potent, at certain times and places, than when the disease ordinarily prevails. This supposition is plausible, and appears to be true of different affections, the contagiousness of which is not doubted, such as *Typhus*, *Variola*, etc. Or, it may be contended that the miasm, which generally is inoperative, becomes more efficient, not by any increase of its strength or quantity, but by the co-operation of other agencies which favor its operation, or render individuals more susceptible to its influence. These two explanations are not incompatible with each other. Both may be applicable, conjointly, in a particular instance. If we examine the history of the disease at North Boston, we shall find several circumstances which may be suspected to have a bearing on the point under consideration. In the first place, the exposure was great. Contagion not being thought of, the fear of contracting the disease imposed no restraint. The houses were small and situated closely together. The place was isolated, furnishing few events to occupy the attention except those which pertained to the domestic experience of the families who were on terms of social intercourse. It would naturally follow that the accumulation of contagious miasm, and the extent to which the members of the community were brought within its influence, was greater than would obtain except under circumstances somewhat similar. But a fact of still greater importance in this connection is the poverty of the families. I have been informed by several persons competent to give this information, (as already stated) that, excepting the family of Fuller, all the others who suffered from the disease were destitute even to a deficiency of wholesome food. In other words, they found it difficult to obtain a comfortable subsistence. It is well known that persons thus situated are unusually susceptible to the miasm of contagion. This fact may serve to explain the immunity from the disease of the two families living at the settlement, but removed at a greater distance than the others from the focus of contagion, viz: the families of Sprague and Bailey. The latter were comfortable livers. It will also serve to account for the disease not attacking persons living in the vicinity who visited the place in order to render assistance to the sick. This circumstance was cited, at the time, as an argument that the disease did not spread by contagion. Those persons, living comfortably, were less susceptible to the contagious miasm.

A circumstance which protected a considerable number of those of the population of the place who escaped, doubtless, was the fact that they had passed the period of life when the liability to contract *Typhoid* fever exists; that is, they were over thirty years of age.

A circumstance which may be considered to have favored the diffusion of the disease among the inhabitants who were susceptible to contagion, has been already mentioned in connection with the diagnosis, viz: the season of the year, *Typhoid* fever being prone to prevail during the autumnal months.

In bringing this memoir to a close, an apology for the space which it occupies is certainly due, if the writer has over estimated the importance of the facts which it contains in their bearing on the mooted question of the contagiousness, at certain times and places, of *Typhoid* fever. Entertaining, however, the belief that, with reference to this question, the occurrence of the disease at North Boston presented a combination of circumstances rarely, and, perhaps, never associated in any analogous instance reported in the annals of medicine, he cannot but hope that the time and trouble bestowed on the subject both by himself, and the patient reader, has not been misapplied.

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